IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

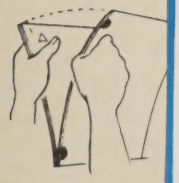
This

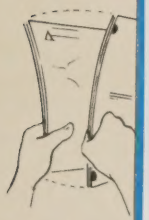
WIRE-

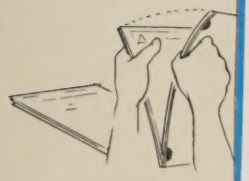
to gua

DO NO

TO OPI







PHOTOFACT* FOLDER SET

*TRADE MARK

NO. 133

CONTENTS

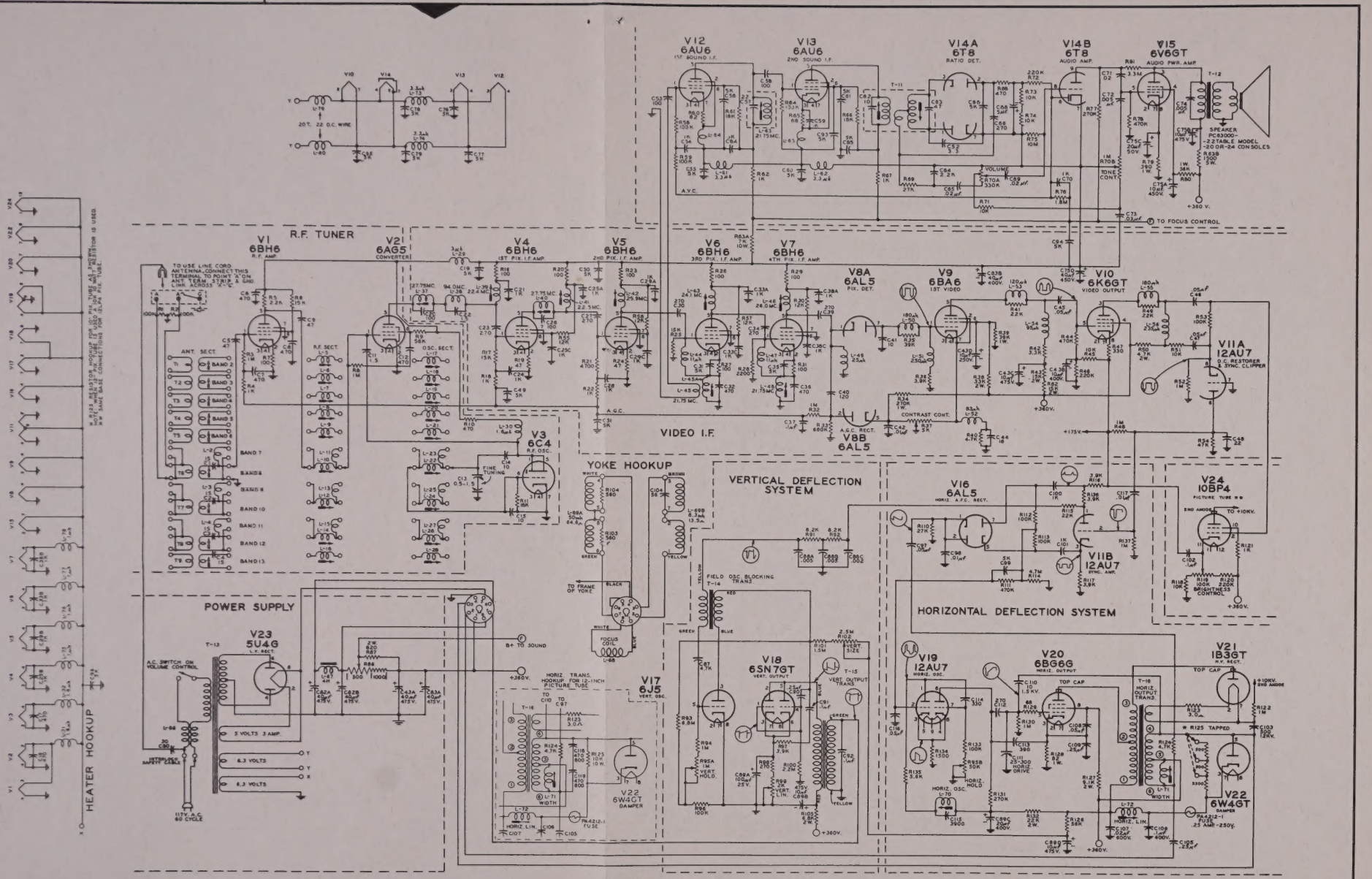
TRADE NAME AND MODEL	SET AND FOLDER NO.
AIRCASTLE	
603-PR-8.1	133-2
AIRLINE	
05GHM-1061A	133-3
AMPRO Recorder	
730	133-4
EMERSON Tel. Rec.	
666B (Ch. 120135B and Radio Ch. 120132B)	133-5
FIRESTONE	
4-B-56	133-6
FORD	
1CF743 (1A-18805-B)	133-7
MAJESTIC Tel. Rec.	
G-414	133-8
G-614	133-8
G-624	133-8
G-914	133-8
14CT4	133-8
16CT4, 16CT5	133-8
19C6, 19C7	133-8
1671, 1672, 1673, 1674, 1675	133-8
1974, 1975	133-8
MOPAR	
606	133-9
MOTOROLA	
501	133-10
RCA VICTOR	
X711 (Ch. RC-1070A)	133-11
SPARTON Tel. Rec.	
4935 (Ch. 23TC10)	133-1A
4942 (Ch. 23TC10)	133-1A
4954 (Ch. 23TC10)	133-1A
4960 (Ch. 23TC10)	133-1A
STROMBERG-CARLSON	
AU-32	133-12
1507	133-13
TRAD Tel. Rec.	
T-20, A	133-14
WESTINGHOUSE Tel. Rec.	
H-639T17 (Ch. V-2192, -1)	133-15
H-640T17 (Ch. V-2173, -3, -4), H-640T17A (Ch. V-2192)	133-15
H-641K17 (Ch. V-2175-1, -5), H-641K17A (Ch. V-2192-1)	133-15
H-646K17 (Ch. V-2192)	133-15
H-647K17 (Ch. V-2175-3)	133-15
H-654T17 (Ch. V-2175-2, -4, V-2192, -1)	133-15

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

Digitized by the Internet Archive
in 2024 with funding from
Amateur Radio Digital Communications, Grant 151

https://archive.org/details/sams_photofact_133



SPARTON MODELS 4935, 4942, 4954, 4960 (Ch. 23TC10)

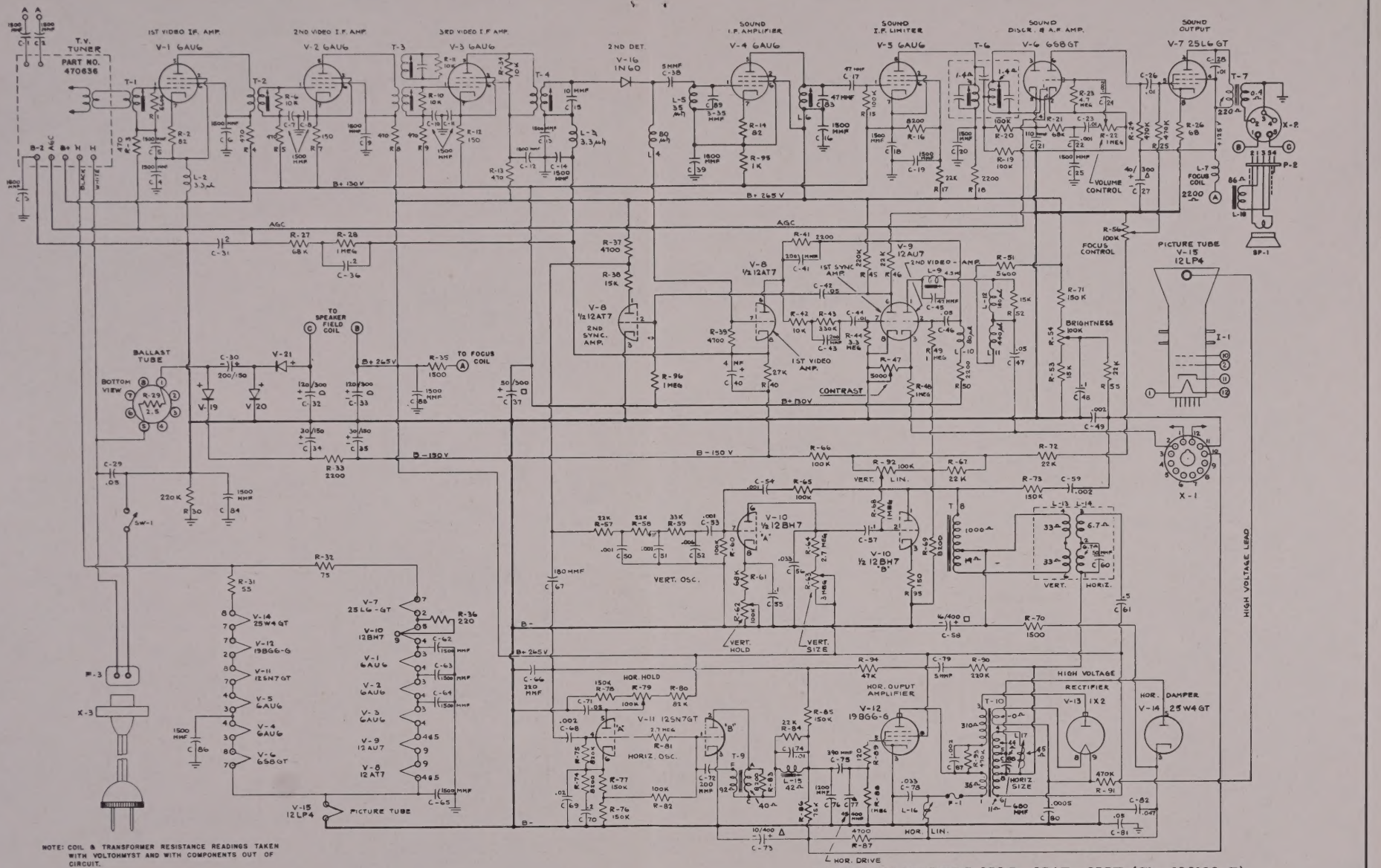
PRELIMINARY DATA

The data contained in this folder is published in advance of regular PHOTOFACT Coverage

SET 133 FOLDER 1A

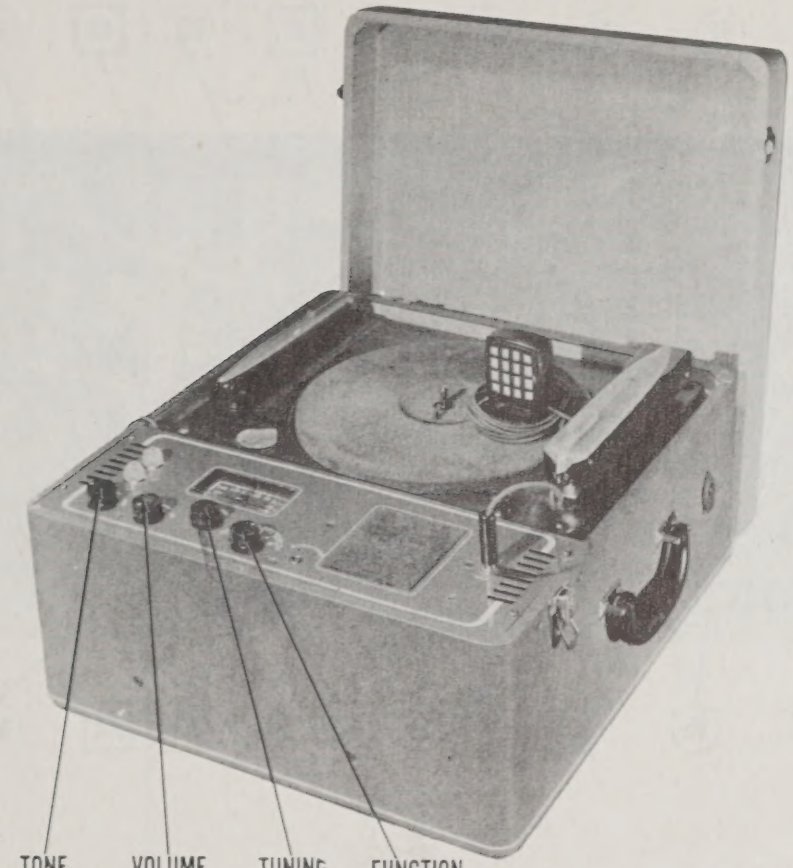
© Howard W. Sams & Co., Inc. 1951

FOR TUNER SEE EMERSON MODEL 650D
IN PHOTOFACT FOLDER 3 SET 109.



EMERSON MODELS 650F, 654F, 655F (Ch. 120138-B)

AIRCASTLE
MODEL 603-PR-8.1



AIRCASTLE
MODEL 603-PR-8.1

TRADE NAME	Aircastle, Model 603-PR-8.1
SUPPLIER	Spiegel, Inc., 1061 W. 35th. St., Chicago, Illinois
TYPE SET	AC Operated Combination Phono-Recorder-Radio, Superheterodyne Receiver
TUBES (SIX)	Types 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det-AVC-AF, 6SQ7GT or 6SJ7 Mic. Amp., 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	105-125 Volts AC — RATING: .48 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400Ω Mod)	Tuning gang fully closed.	Across voice coil.	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		Loop	1620KC	Tuning gang fully open.	"	A5	"
3.		Loop	1400KC	Tune for max. output.	"	A6	Adjust for maximum output. Set pointer to 140 on dial scale.
4.		Loop	600KC	"	"		Adjust end plates on ant. section of tuning gang for maximum output. Repeat steps 3 & 4 until no further output can be obtained.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	6SA7GT	6SA7GT	8AD	
V2	IF Amplifier	6SK7GT	6SK7GT	8N	
V3	Detector-AVC-AF Amplifier	6SQ7GT	6SQ7GT	8Q	
V4A	Microphone Amp.	6SQ7GT	6SQ7GT	8Q	
B	Microphone Amp.	6SJ7	6SJ7	8N	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	450	††	AF4444J		UP222245		TVL-4763	▲ Filter
B	20	450							■ Filter
C	20	350							▲ Filter
D	10	350							Output Cathode
C2	8	350		PRS350/8		BR835A		TVA-1603	Decoupling *
C3	25	25	1002	PRS25/25		BR252A		TVA-1205	Mic. Pre-Amp. Cathode †
C4	.05	600	803-B	P688-05	DF-503	PTE6S5		6TM-S5	AVC Filter *
C5A	100		‡ 811	SI100	*PC-50	5W5T1	GP1K-100	19C11	Diode RF Filter
B	100			SI100		5W5T1	GP1K-100	19C11	Diode RF Filter
C6	1000		§812	SI1000	D6-102	1W5D1	GP2L-001	19C1	Tone Comp.
C7	1000		#813	BPD-01	DD-103	PTE4S1	821-01	36C1	Audio Coupling
C8	250		809	SI250	D6-251	5W5T25	GP2K-250	19C13	AF Amp. Plate
C9	1000		♦814	BPD-01	DD-103	PTE6S1	821-01	36C1	Audio Coupling
C10	5000			BPD-005	DD-502	PTE6D5	811-005	29C1	Tone Comp. **
C11	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate ††
C12	5000			BPD-005	DD-502	PTE6D5	811-005	29C1	Audio Coupling †
C13	1000		¶814	BPD-01	DD-103	PTE6S1	821-01	36C1	Audio Coupling
C14	.01	400	802-A	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter

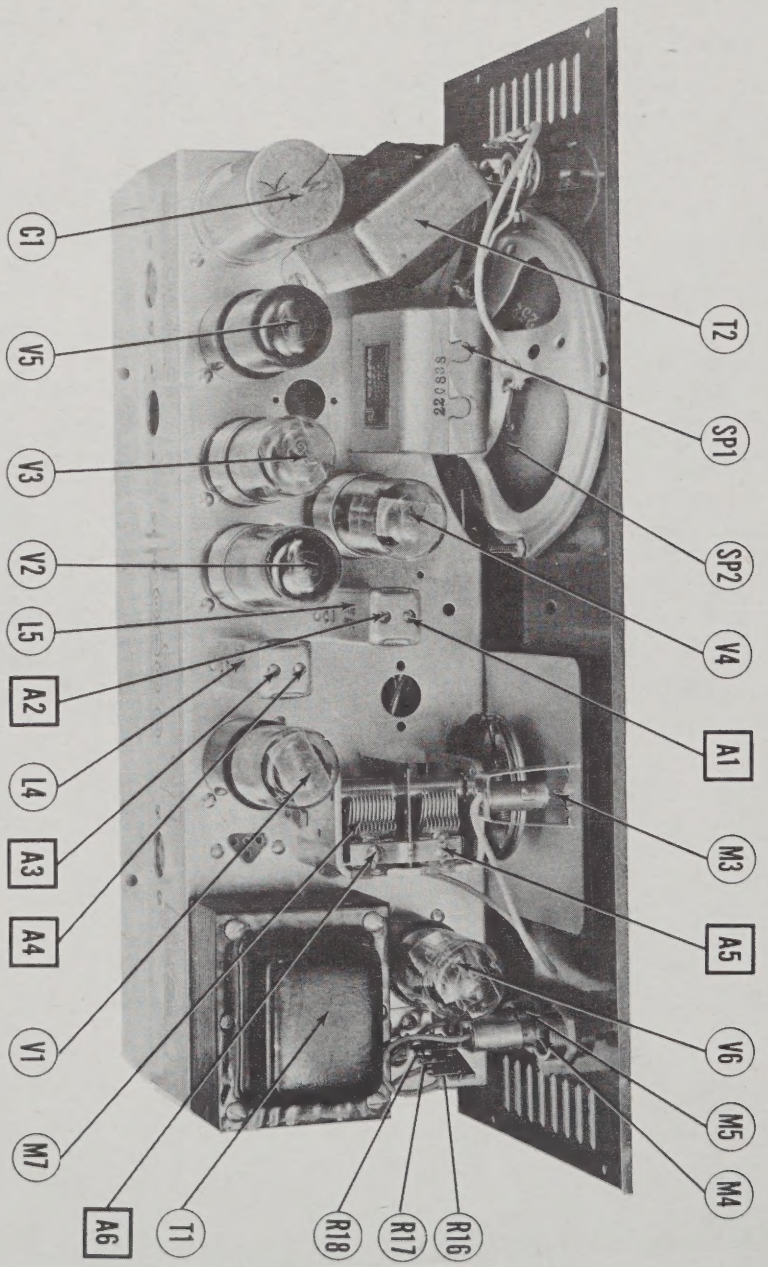
* Some models use .1MFD in this application.
† Not used in all models.
‡ Items C5A, C5B, and R4 are combined into one unit.
§ Items C6 and R7 are combined into one unit.
# Items C7 and R8 are combined into one unit.
♦ Items C9 and R9 are combined into one unit.
¶ Items C13 and R21 are combined into one unit.
** Some models use .05 MFD in this application.
†† Some models use .002 MFD in this application.
‡‡ Some models use 14-8-8-/450V., 10/25 in this application. Mfgrs. Part # 1005

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½		Q13-133	AG-60-Z	BSK-60	Tone Control - See Note 1
B	Shaft			Not Req	KSS-3	Not Req	Attach to R1A per instructions
R2A	500KΩ	½	401	Q13-133	AG-60-Z	BSK-60-S	Volume Control
B	Shaft			Not Req	KSS-3	Not Req	Attach to R2A per instructions
C	Switch			76-1	SWB-	Not Req	Attach to R2A per instructions

Note 1 Some models use 50KΩ Control in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRCASTLE PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
R3	22KΩ	½	517		Osc. Grid
R4	50KΩ	½	523 †		Diode Filter
R5	2.2Meg	½	615	BTS-2.2Meg	AVC Network
R6	47Ω	½			AF Amp. Cathode - See Note 2
R7	5Meg	½	812 §		Series Phono
R8	5Meg	½	813 #	BTS-470K	AF Amp. Grid
R9	250KΩ	½	814 ♦	BTS-270K	AF Amp. Plate
R10	2.2Meg	½	615	BTS-2.2Meg	Feedback Network
R11	510KΩ	½	501	BTS-470K	Output Grid - See Note 2
R12	330Ω	1	602	BTA-330	Output Cathode
R13	50KΩ	½	523		Impedance Matching - See Note 2
R14	4.3Ω	½	526	BW-1-4.3	Output Transformer Load
R15	10Ω	½	527		Output Transformer Load
R16	510KΩ	½	501	BTS-470K	Indicator Network
R17	510KΩ	½	501	BTS-470K	Indicator Network
R18	250KΩ	½	529	BTS-270K	Indicator Network
R19	2200Ω	½	504	BTS-2200	Mike Pre-Amp Cathode - See Note 2
R20	5Meg	½	525	BTS-470K	Mike Pre-Amp. Grid
R21	250KΩ	½	814 ¶	BTS-270K	Mike Pre-Amp. Load
R22	15KΩ	2	606	BTB-15K	Filter
R23	1000Ω	1	607	BTA-1000	Filter
R24	15KΩ	2	606	BTB-15K	Voltage Divider - See Note 2

Note 2 Not used in all models.
† Items R4, C5A, and C5B are combined into one unit.
§ Items R7 and C6 are combined into one unit.
# Items R8 and C7 are combined into one unit.
♦ Items R9 and C9 are combined into one unit.
¶ Items R21 and C13 are combined into one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	560VCT	6.3VAC		1101	P-8011		
	② .48A	.065ADC	② 2.5A					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T2	5.6KΩ	3Ω	450Ω	.82Ω SEC. 2 2.7KΩ	1202				

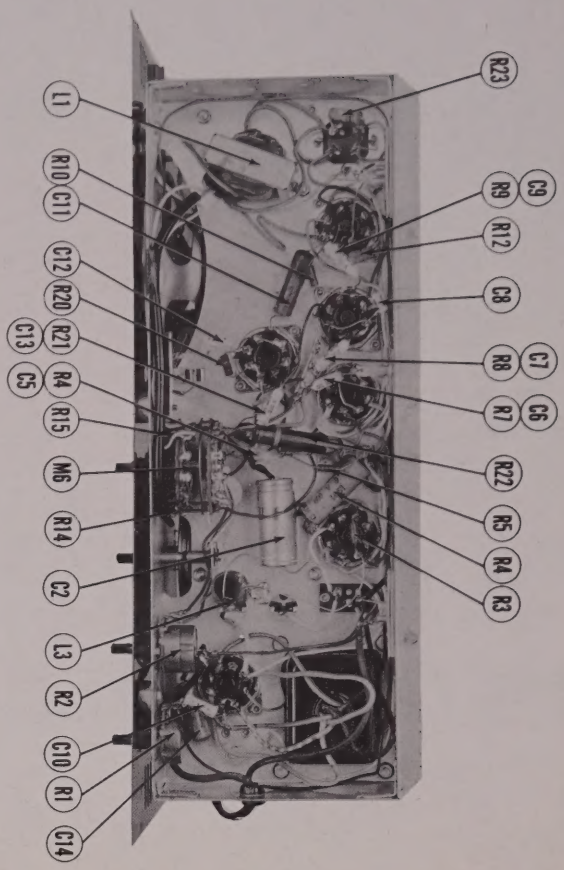
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP				
SP1	PM	3Ω	2603	ST-105 Model P5-X	5A1	
	CONE DIA.	V. C. DIA.				
SP2	4 5/16"	9/16				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 v)	REPLACEMENT DATA AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.065A	230Ω	5.5 Henries	1301	C-1325 ①	C-2977 ①	R-650	① Drill one new mounting hole

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRCASTLE PART No.	REPLACEMENT DATA MEISSNER PART No.	
L2	Loop Ant.	1.5Ω		5112		
L3	Osc. Coil	6Ω		1403		Tap At .9Ω
L4	1st. IF	13Ω	13Ω	1402	16-6678	
L5	2nd. IF	13Ω	13Ω	1402	16-6678	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA AIRCASTLE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1	2530C	GC-AG-J	G-AG	WC36B	A56U	43	0-2 or S-2	† Cutting Head
M2		X-26 †						

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRCASTLE PART No.		NOTES
M3	Bayonet	6-8	.15	Brown			Type #47

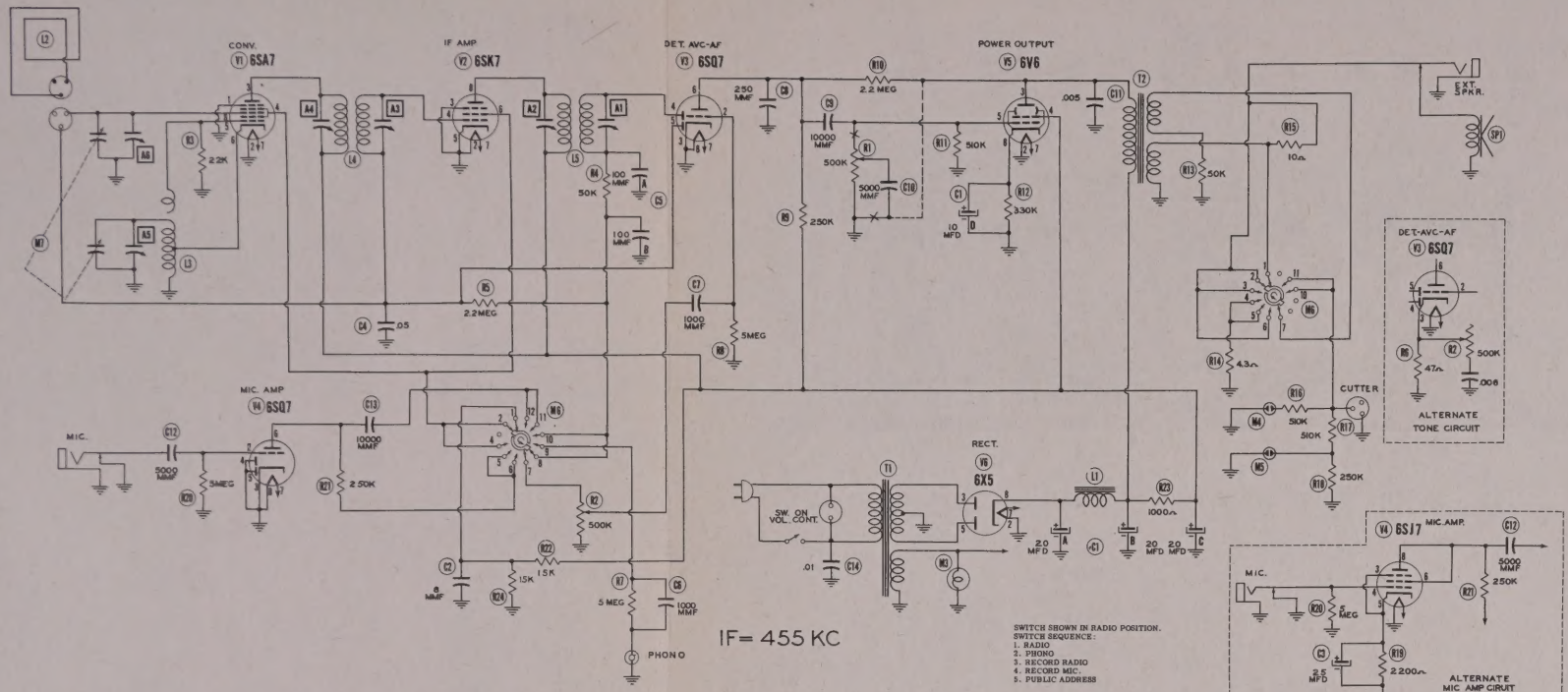
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M4	Neon Lamp	2202-A	NE-51
M5	Neon Lamp	2202-A	NE-51
M6	Switch	2204	Function
M7	2 Gang Var. Cap.	1004	(16-389MMF, 28-187MMF)
	Dial Scale	1722	
	Dial Pointer	1736	

TUNING GANG FULLY CLOSED

2 1/2 TURNS

DIAL CORD DRIVE



SWITCH SHOWN IN RADIO POSITION.
SWITCH SEQUENCE:
1. RADIO
2. PHONO
3. RECORD RADIO
4. RECORD MIC
5. PUBLIC ADDRESS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SA7GT	0V	0V	260VDC	90VDC	8-12.5VDC	0V	6.3VAC	-.7VDC
V 2	6SK7GT	0V	0V	0V	-.7VDC	0V	90VDC	6.3VAC	260VDC
V 3	6SQ7GT	0V	-.6VDC	0V	-.7VDC	-.8VDC	110VDC	6.3VAC	0V
V 4	6SQ7GT	0V	▲-.6VDC	0V	0V	0V	▲100VDC	6.3VAC	0V
V 5	6V6GT	0V	0V	270VDC	260VDC	0V	0V	6.3VAC	14VDC
V 6	6X5GT	0V	0V	270VAC	0V	270VAC	0V	6.3VAC	310VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SA7GT	0Ω	0Ω	†1.2KΩ	†16KΩ	22KΩ	.9Ω	.1Ω	2.7Meg
V 2	6SK7GT	0Ω	0Ω	0Ω	2.7Meg	0Ω	†16KΩ	.1Ω	†1.2KΩ
V 3	6SQ7GT	0Ω	5Meg	0Ω	550KΩ	2.7Meg	†250KΩ	.1Ω	0Ω
V 4	6SQ7GT	0Ω	5Meg	0Ω	0Ω	0Ω	▲†265KΩ	.1Ω	0Ω
V 5	6V6GT	0Ω	0Ω	†680Ω	†1.2KΩ	509KΩ	Inf.	.1Ω	330Ω
V 6	6X5GT	0Ω	0Ω	170Ω	Inf.	170Ω	Inf.	.1Ω	65KΩ

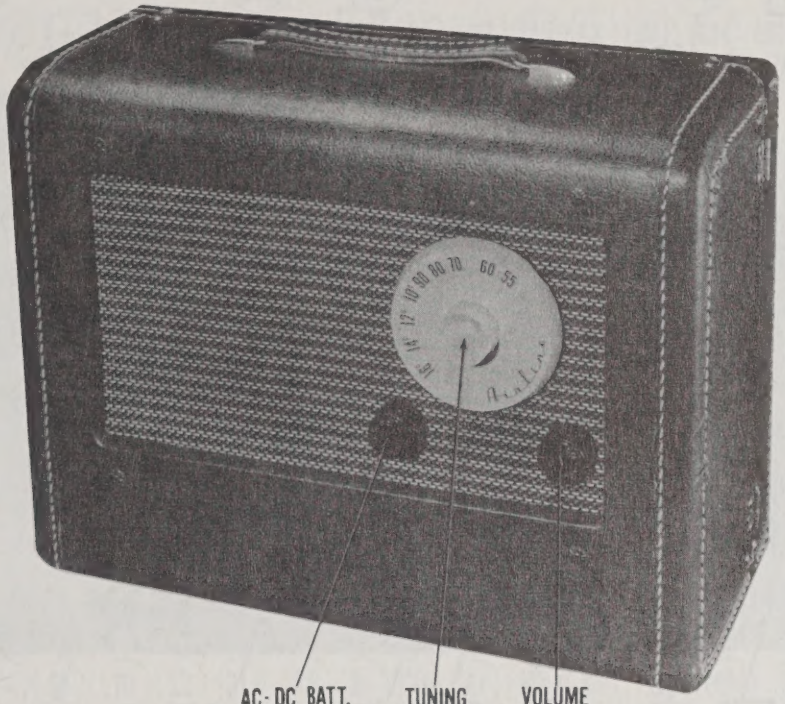
V & R TAKEN WITH FUNCTION SWITCH IN RADIO POSITION EXCEPT AS NOTED
▲ FUNCTION SWITCH IN RECORD MIC OR PA POSITION
† MEASURED FROM PIN 8 OF V8

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

AIRLINE MODEL
05GHM-1061A



AIRLINE MODEL
05GHM-1061A

TRADE NAME	Airline, Model 05GHM-1061A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 1R5 Converter, 1T4 IF Amplifier, 1U5 Det-AVC-AF, 3Q5 Power Output
POWER SUPPLY	105-125 Volts AC-DC or 7.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	.20 Amp. @ 117 Volts AC or 45 MA @ 7.5 Volts DC and 12 MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (Grid) of 1R5 (V1) Low side to B-.	455KC (440% Mod)	Tuning gang fully closed.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	540KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1640KC	Tuning gang fully open.	"	A6	Adjust for maximum output. Repeat steps 2 & 3 until no further improvement can be made.
4.		Loop	1400KC	Tune for max. output.	"	A7	Adjust for maximum output.
5.	Replace set in cabinet and tune in 1400KC signal. Set dial so 140 on dial is even with index on cabinet.						

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1T4	1T4	6AR	
V3	Det.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3Q5	3Q5	7AQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	PC4	PRS150/50-50		EDL5315X2		TVA-3433	Filter Red
B	50	150		PRS25/250		BR2015A		TVA-1410	Filter Blue
C	200	25							Filament Bypass Green
C2	200	50		PRS25/250		BRH2525A		TVA-1208	Filament Bypass *
C3	.1	100	PC2	P288-1	DF-104	PTE4P1		2TM-P1	AVC Filter
C4	51		PC5	SI50	D6-500	5W5Q5	GP1K-51	19C28	Osc. Grid Cap.
C5	.05	100	PC1	P288-05	DF-503	PTE4S5		2TM-S5	Decoupling
C6	.1	100		P288-1	DF-104	PTE4P1		2TM-P1	Filament Bypass
C7	.25	150	PC3	P488-25		GT2P25		72P52	Line Isolation
C8	.05	150	PC1	P288-05	DF-503	PTE4S5		2TM-S5	RF Bypass †
C9	91		PC6	SI100	D6-101	5W5T1	GP1K-100	19C11	Diode RF Filter
C10	91		PC6	SI100	D6-101	5W5T1	GP1K-100	19C11	Diode RF Filter
C11	.01	100	PC8	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling ‡
C12	.01	100	PC8	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling ‡
C13	.05	100	PC1	P288-05	DF-503	PTE4S5		2TM-S5	AF Amp. Screen
C14	.01	100	PC8	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C15	.01	100	PC8	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate §
C16	.05	600	PC10	P688-05	DF-503	PTE6S5		6TM-S5	Line Filter

* Some models use 100MFD in this application Mfgrs. Part # PC11
† Not used in all models.
‡ Some models use .005 MFD in this application.
§ Some models use .006 MFD in this application.

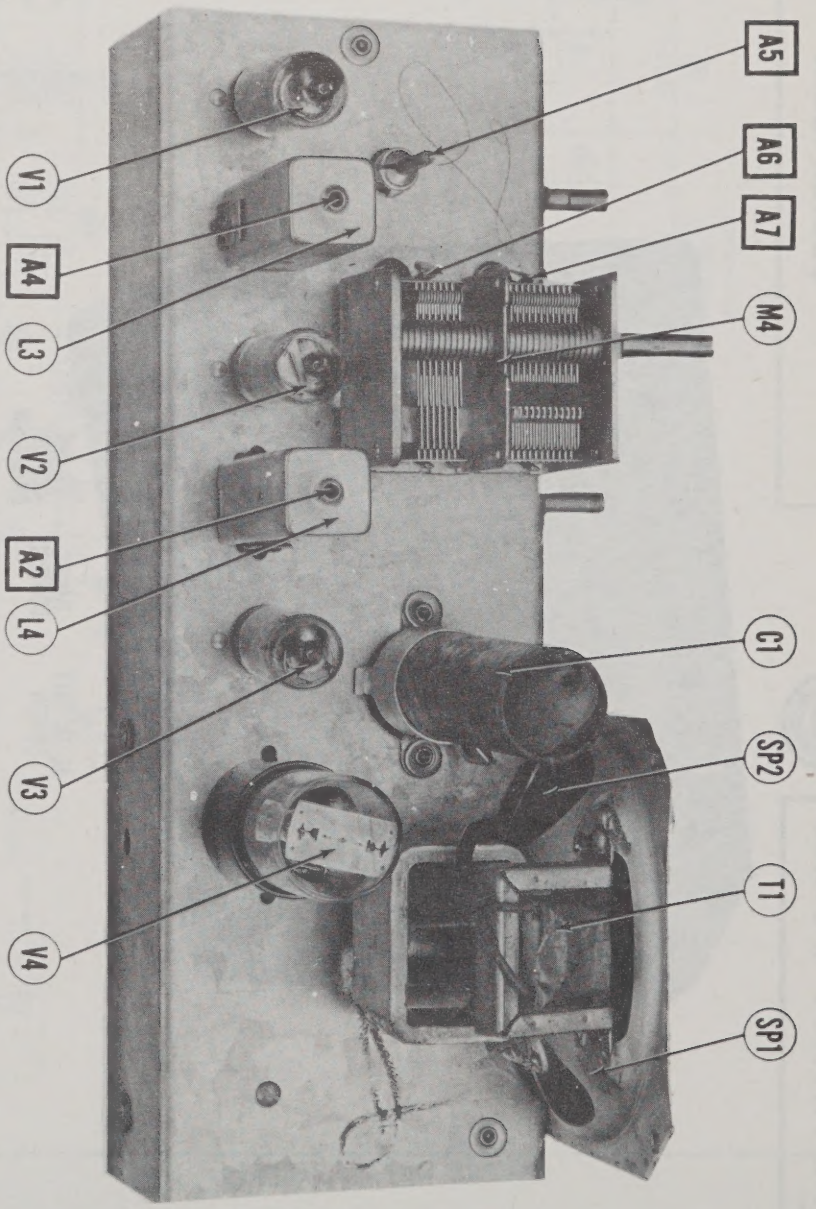
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	PR6	Q13-133	AG-60-Z	B-60-S	Volume Control
B	Shaft		Not Req	Not Req	RS-2	Not Req	Attach to R1A per instructions
C	Switch		Not Req	76-2	SWB-2	Not Req	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	PR3		Osc. Grid
R3	2.2Meg	½	PR8	BTS-2.2Meg	AVC Network
R4	2.2Meg	½	PR8	BTS-2.2Meg	AVC Network
R5	15KΩ	½	PR9		Screen Loading
R6	50KΩ	½			Diode Filter
R7	500KΩ	½			Diode Load
R8	5Meg	½			AF Amp. Grid
R9	2.2Meg	½	PR8	BTS-2.2Meg	AF Amp. Screen
R10	500KΩ	½		BTS-470K	AF Amp. Plate
R11	1Meg	½	PR12	BTS-1Meg	Output Grid
R12	560Ω	½		BTS-560	Filament String
R13	560Ω	½		BTS-560	Filament String
R14	50KΩ	½			Filament String
R15	560Ω	½		BTS-560	Filament String
R16	2200Ω	½		BTS-2200	Filament String
R17	2500Ω	10	PR16	1 3/4A-2500	Filament Dropping (Wire Wound)
R18	3200Ω	1			Filter
R19	10Ω	1			Surge Limiter
R20	500KΩ	½		BTS-470K	Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9.3KΩ	3Ω	440Ω	.4Ω		A-3329 ①	A-2927 ①	R0-16 ①	① Solder to original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST113		
SP1	PM	3Ω	PM 2	Model P4-X	4A1	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
L1	Loop Ant.	2.4Ω		PM12		
L2	Osc. Coil	2.2Ω	6.4Ω	PM6		
L3	1st. IF	18Ω	18Ω	PM4		
L4	2nd. IF	18Ω	18Ω	PM4		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	AIRLINE PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.070A	PM 3	NC-5	5M1	

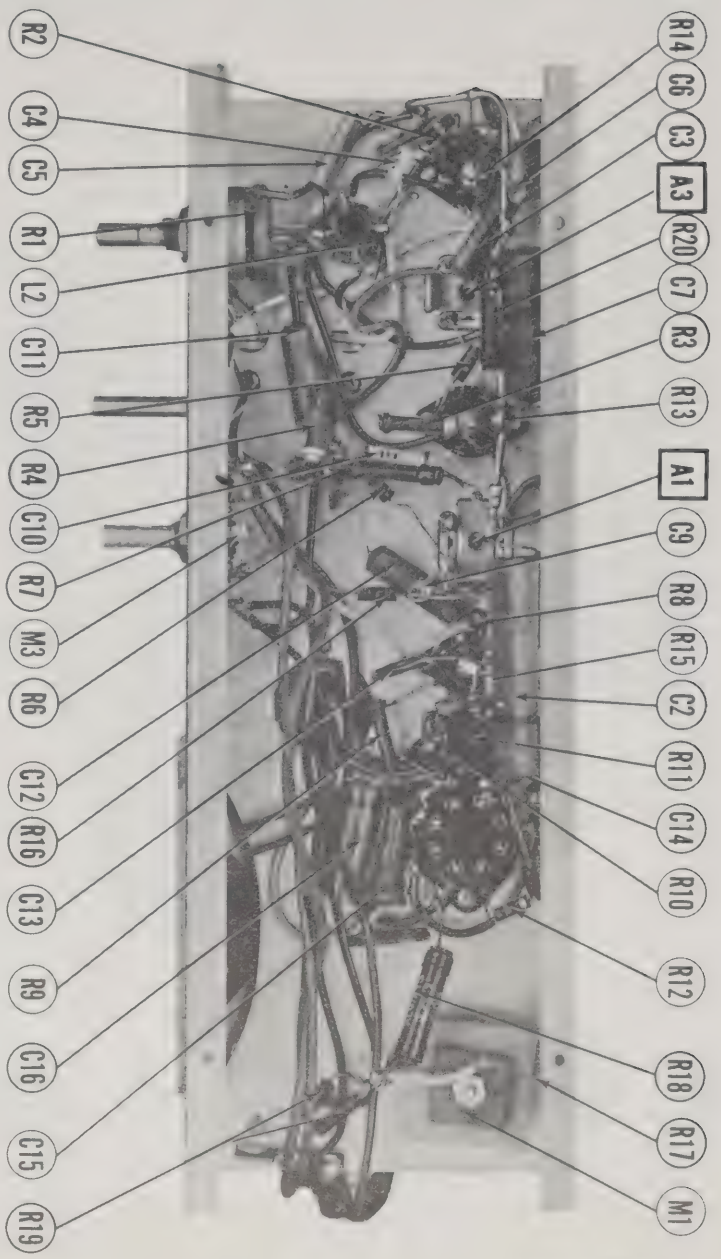
BATTERIES

ITEM No.	VOLTAGE	PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	7.5V "A" 90V "B"	33			753			F6A60	

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M3	Switch	PM7	AC/DC-Battery
M4	2 Gang Var. Cap.	PM1	(14-388MMF, 37-162MMF)
	Dial	PM10	
	Cabinet	PM14	

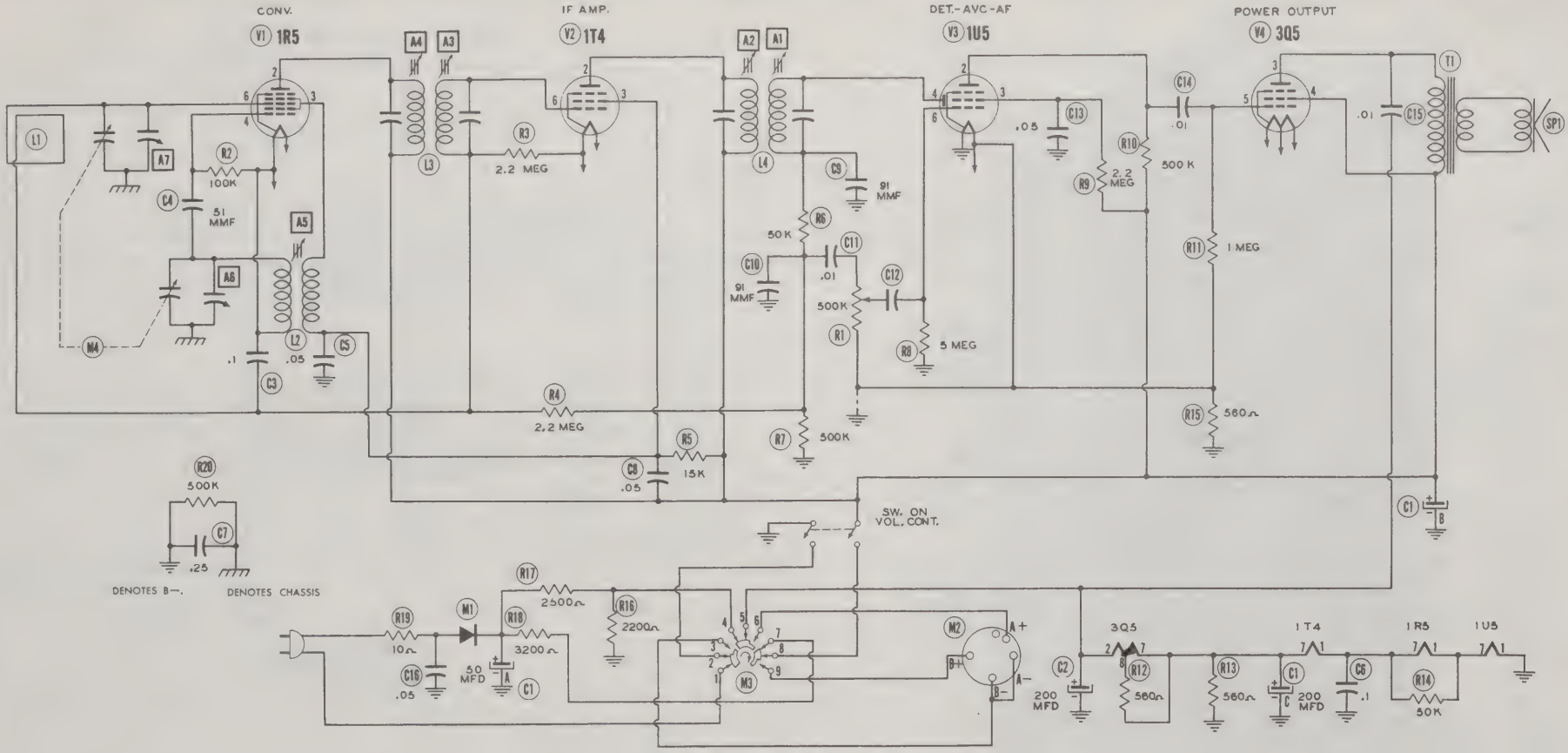
CHASSIS—BOTTOM VIEW



SET 133 FOLDER 3

AIRLINE MODEL 056HM-106IA

AIRLINE MODEL 056HM-106IA



IF= 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	1R5	1.4VDC	90VDC	60VDC	§-6.1VDC	1.4VDC	.2VDC	3.2VDC	
V 2	1T4	3.2VDC	90VDC	60VDC	0V	3.2VDC	.2VDC	4.7VDC	
V 3	1U5	0V	20VDC	6.5VDC	-.2VDC	0V	0V	1.4VDC	
V 4	3Q5	90VDC	7.8VDC	85VDC	90VDC	0V	0V	4.7VDC	6.4VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	1R5	•	†3.2KΩ	†18KΩ	100KΩ	•	1.3Meg	•	
V 2	1T4	•	†3.2KΩ	†18KΩ	Inf.	•	1.3Meg	•	
V 3	1U5	•	†500KΩ	†2.2Meg	550KΩ	Inf.	5Meg	•	
V 4	3Q5	†3.2KΩ	•	†3.6KΩ	†3.2KΩ	1Meg	Inf.	•	•

POWER SWITCH IN ON POSITION
V & R TAKEN IN AC-DC POSITION

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1951

133-3

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AMPRO
MODEL 730

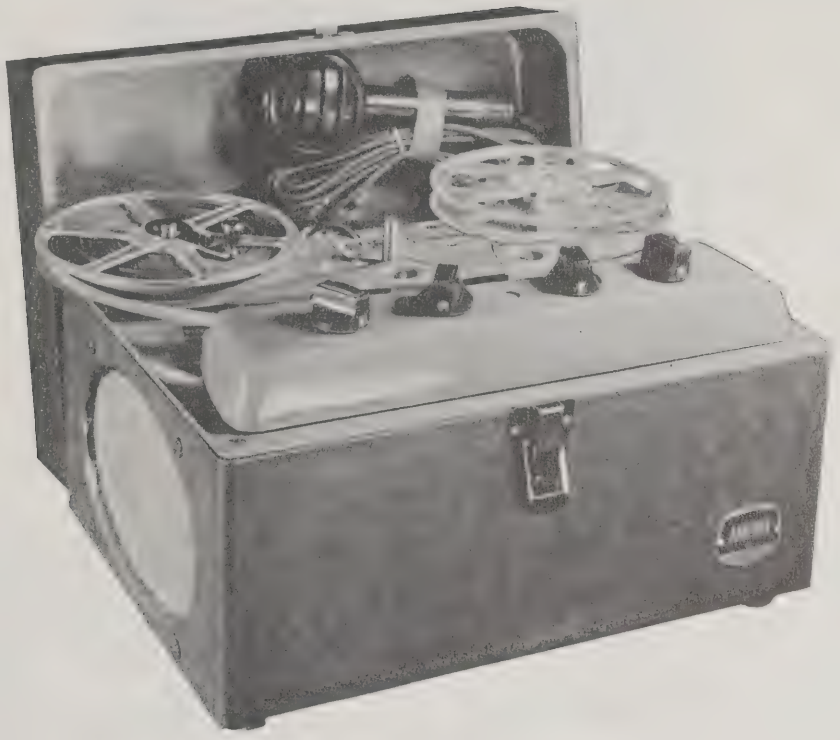


Figure 1

AMPRO
MODEL 730

General Information

The Ampro Model 730 is a combination Tape Recorder and Playback unit, designed to magnetically record on a standard 1/4"-wide tape - two tracks instead of one - which doubles the playing time with no loss in frequency response or quality.

The Ampro Model 730 records at a constant speed of only 3-3/4" per second. This, along with its "dual track" recording system, allows you to record a full one-hour program on a 5" reel of tape, and a full two-hour program on a 7" reel of tape. Recordings may be made from the microphone, or radio programs may be recorded by the use of the radio phonograph adaptor cord.

Power Supply: 105-120 volts, 60 cycles AC.

Manufactured By:

Ampro Corporation
2835 N. Western Avenue
Chicago 18, Illinois

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

COPYRIGHT 1951 • ALL RIGHTS RESERVED

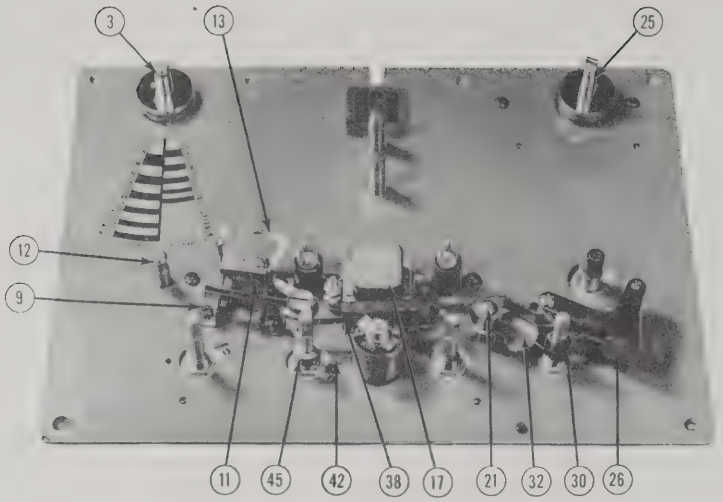


Figure 2

OPERATING INSTRUCTIONS

Recording:

To prepare the Ampro 730 for recording:

1. Insert the line cord plug into a convenient wall receptacle of the proper rating.

2. Place an empty reel (side #1 up) on the right-hand spindle (25) of the recorder.

   CAUTION: Leave the spindle locking key in a vertical position.

3. Place a full reel of tape on the left-hand spindle (3).

   NOTE: Place the full reel of tape on the recorder so that when the tape is pulled the reel will turn in a counterclockwise direction. The dull, magnetic side of the tape should always face inward.

4. Unroll about 12" of tape from the reel and drop it into the threading channel; then feed the end of the tape up through one of the radial slots in the empty reel, after which, wind several turns of the tape on the reel.

5. Plug the "MIC" into the socket on the control panel marked "Input."

6. Turn the amplifier control to "On" position. When the indicator light on the left side of the panel glows, the recorder is ready to be put into operation.

7. Turn the Play-Record-Mic. control to "MIC."

8. Hold the "MIC" about 10" from your face and speak into it in a normal voice; then adjust the Volume control until the Recording Level light flashes faintly on high peaks only.

9. Turn the motor control knob to "On" position. The reels will now rotate and any sounds entering the microphone will be recorded on the tape. If a full reel of tape is to be recorded, stop the recorder before all the tape has run off the reel. By doing this, tape rethreading is unnecessary.

Recording the Second Sound Track:

If after the #1 side of the full reel of tape has been recorded and the recording is to be continued, do so as follows:

1. Lift the tape out of the threading channel and lift both reels off the spindles.

2. Turn the reels completely over and place them on opposite spindles.

3. Place the tape in the threading channel and proceed with the recording in the same manner as described above.

To Stop the Recorder:

1. A recording may be stopped at any time by turning the motor switch to the "Off" position. This does not turn the amplifier off.

NOTE: When not recording, always place the Play-Record-Mic. control in the "Play" position.

To Play Back a Recording:

1. If both tracks of the tape have been recorded, reverse the two reels in the same manner as described in "Recording the Second Sound Track."

2. Turn the Play-Record-Mic. knob to "Play."

3. Turn the motor switch to "On."

4. Adjust the volume control to suit. The recording will now be played back.

5. If just one track has been recorded, or a portion of the tape is to be replayed, turn the Play-Record-Mic. control to "Play."

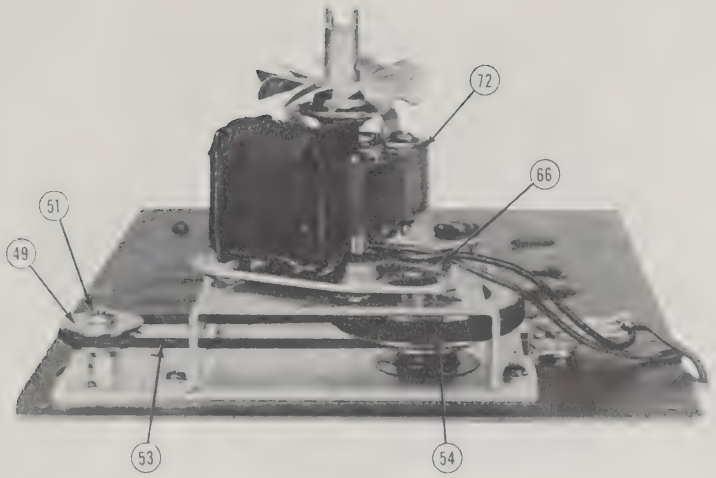


Figure 3

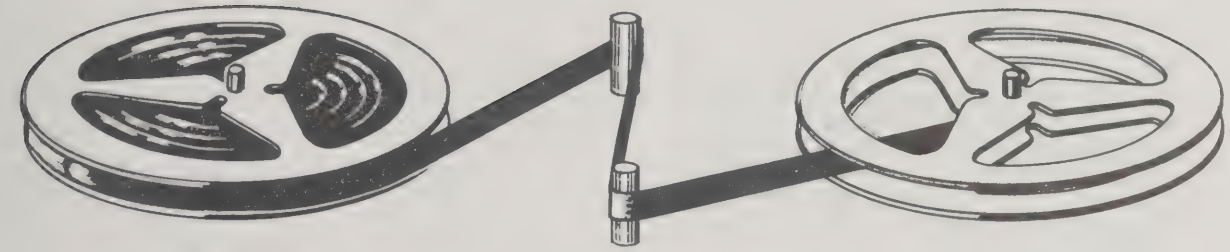


Figure 4

6. Turn volume control clockwise, about 1/4 turn.

7. Place the hand rewind crank on the left-hand reel. Turn the crank clockwise to wind the tape back on the left-hand reel. The recording will now be played backward. When the sound stops, you have reached the start of the recording.

8. Turn the motor switch on and adjust the volume control.

Erasing Recorded Material:

Erasing of recorded material takes place automatically when new material is recorded; therefore, no special step is necessary to erase old recordings before new recordings are made. However, if the tape is to be completely erased, do so as follows:

1. Remove the microphone plug.

2. Turn down the volume control.

3. Set the Play-Record switch to "Record."

4. Turn the motor switch on and allow the tape to run through the recorder, thereby leaving the tape blank. Only one track of the recording is erased at one time. To erase the second track, reverse the reels and repeat the operation.

Connection to Radio:

Radio programs may be recorded on the wire with the use of the Radio-Phonograph Adaptor Cord. To make this connection, snap the clips on the Adaptor Cord to the terminals at the back of the radio speaker. Then plug the other end of the cord into the input socket of the recorder. Turn the Play-Record-MIC. control to "Record"; then follow the same procedure for recording.

To Repair or Splice Tape:

In case the tape is broken accidentally, or it is desired to edit the recording, a splice may be made with Scotch tape. Do not use medical adhesive tape, as the adhesive material is not suited to this purpose. The Scotch tape should be applied to the reverse, or uncoated, side of the recording tape. The edges of the splice should be trimmed with a small pair of scissors, or a knife, to bring the width of the splice to that of the rest of the recording tape so it will pass through the threading channel without interference.

Fast-Forward:

If each recording on the tape has been edited by observing the relation of the tape to that of the timing indicator on the motor board, any recording may be located, or any portion of a recording skipped, very quickly by using the Fast-Rewind method. This is done as follows:

1. Fold down the spindle locking key on the right-hand spindle so that it will engage one of the slots in the reel.

2. Pull the tape from the threading channel and loop the tape around the guide pins as shown in Figure 4.

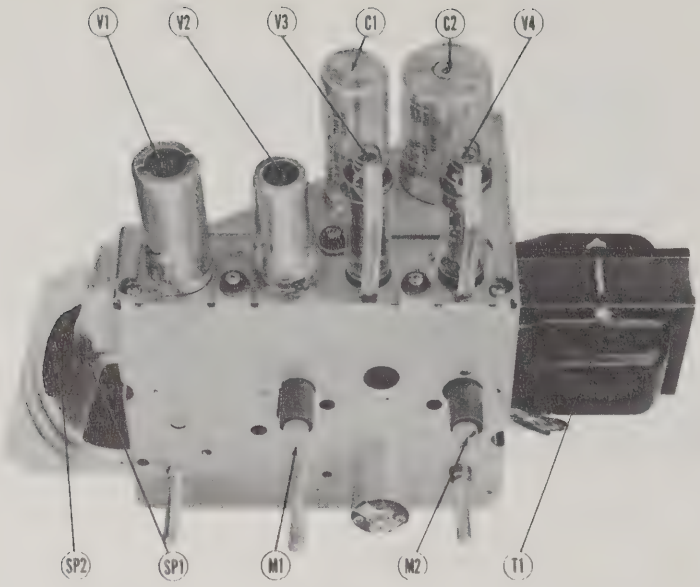


Figure 5

3. Turn the motor control on. Approximate location of a recording is made by observing the relation of the timing indicator to that of the tape. When nearing the recording you wish to play, place a finger close to the edge of the supply reel to prevent the tape from slipping off; then turn the motor control off.

4. Return the locking lever to the vertical position.

5. Replace the tape in the threading channel of the recorder and proceed in the same manner as described in "To Play Back a Recording."

Fast-Rewind:

A reel of tape may be rewound by the Fast-Rewind method. It may be accomplished as follows:

1. Remove the tape from the threading channel.

2. Lift both reels off the spindles and turn them over; then place the reels on opposite spindles. The full reel should be on the right-hand spindle.

3. Loop the tape around the guide pins, as shown in Figure 4.

4. Fold over the locking key so as to engage one of the slots in the reel.

5. Turn the motor switch on. The tape will now be rewound on the left-hand reel.

NOTE: If the recorder is stopped before all the tape has run off the reels in any of the operations, rethreading the reel will be unnecessary.

TROUBLES

Failure to Record:

1. Worn Pressure Pads: Tape not held against laminations of the recording head. If the pressure pads are worn to less than 1/16", the pads must be replaced:

(a) Remove the control knobs, 3 set screws (1), and the control panel (2).

(b) Lift the end of the pressure pad spring (32) over the motor control shaft.

(c) Remove screw (21).

(d) Remove the pressure pad assembly (38) and stud (37).

(e) Use a good solvent to remove the pads from the springs.

(f) Cement on new pads, making sure the pads are parallel to the edges of the springs and that the ends of the pads are flush with the ends of the springs.

(g) Reassemble the assembly.

(h) Place the end of the pressure pad spring (32) below pressure roller actuator (30) and turn the motor control knob slowly, observing the pressure pads. They should enter the slots of the record and erase heads and bear firmly on the proper surfaces of the heads.

(i) Turn the motor control to the "On" position.

(j) Loosen the two set screws (31) in the roller actuator.

(k) Turn the motor control switch to "Off."

(l) Turn the actuator (30) counterclockwise until the recording head pressure pad clears the recording head (17) by at least 1/8".

(m) Tighten the actuator collar (30) set screws (31).

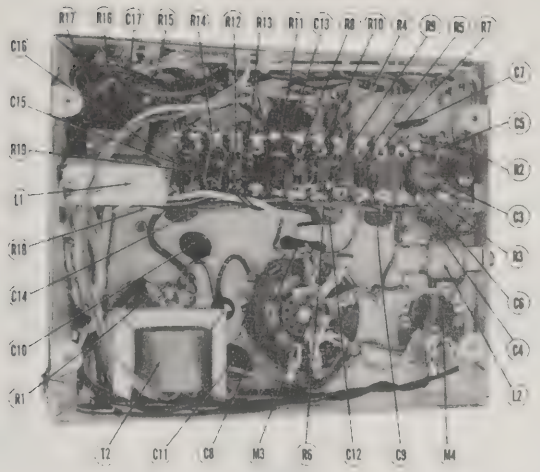


Figure 6

(n) Replace the cover, mounting screws and control knobs.

2. Laminations on the Recording Head Dirty:

(a) The laminations of the recording head (17) are subject to an accumulation of tape coating residue, which is worn off as the tape passes the head, This must be periodically removed since it will cause distortion. This accumulation may be removed with carbon tetrachloride and a small cotton swab on the end of a toothpick. Be careful not to mar the laminations as they should be smooth to operate properly.

(b) Loosen set screw (41) in collar (45).

(c) Turn the collar clockwise until the erase lever fingers (13) are 1/8" to 3/16" in front of the magnet poles.

(d) While holding the collar in this position, move it up or down as required for the actuating arm to bear fully upon the ear on the erase lever (13).

(e) Tighten the screw (41).

NOTE: Make sure the erase lever spring (42) is not pinched between collar and control bushing.

(f) Replace the control panel, mounting screws, and control knobs.

Takeup Mechanism Fails to Operate Properly:

1. Drive belt (53) broken or worn out. Replace.

2. Grease or oil on drive pulley tire (54), motor shaft, drive belt (53), and takeup pulley (49).

Clean these parts thoroughly with carbon tetrachloride.

3. Motor pressure spring loose or missing. Replace.

4. Dirty or n friction washers:

(a) Remove the drive belt (53), hex nut (51), lock washer and spindle pulley (49).

(b) Remove spindle (25) and wash in carbon tetrachloride, dry and reassemble.

3. Pressure Roller Actuator Loose:

(a) If the roller actuator (30) is loose, the pressure pad assembly will not be actuated, which, as a result, fails to hold the recording head against the laminations of the head (see "Failure to Record" - "h," "i," "j," "k," "l," "m," of part 1, for adjustments).

Failure to Erase:

1. Pressure Pads Worn: (See "Failure to Record-1)

2. Erase Mechanism Out of Adjustment -

Adjust as Follows:

Positioning Erase Head -

(a) Remove the control knobs.

(b) Remove the control panel (2).

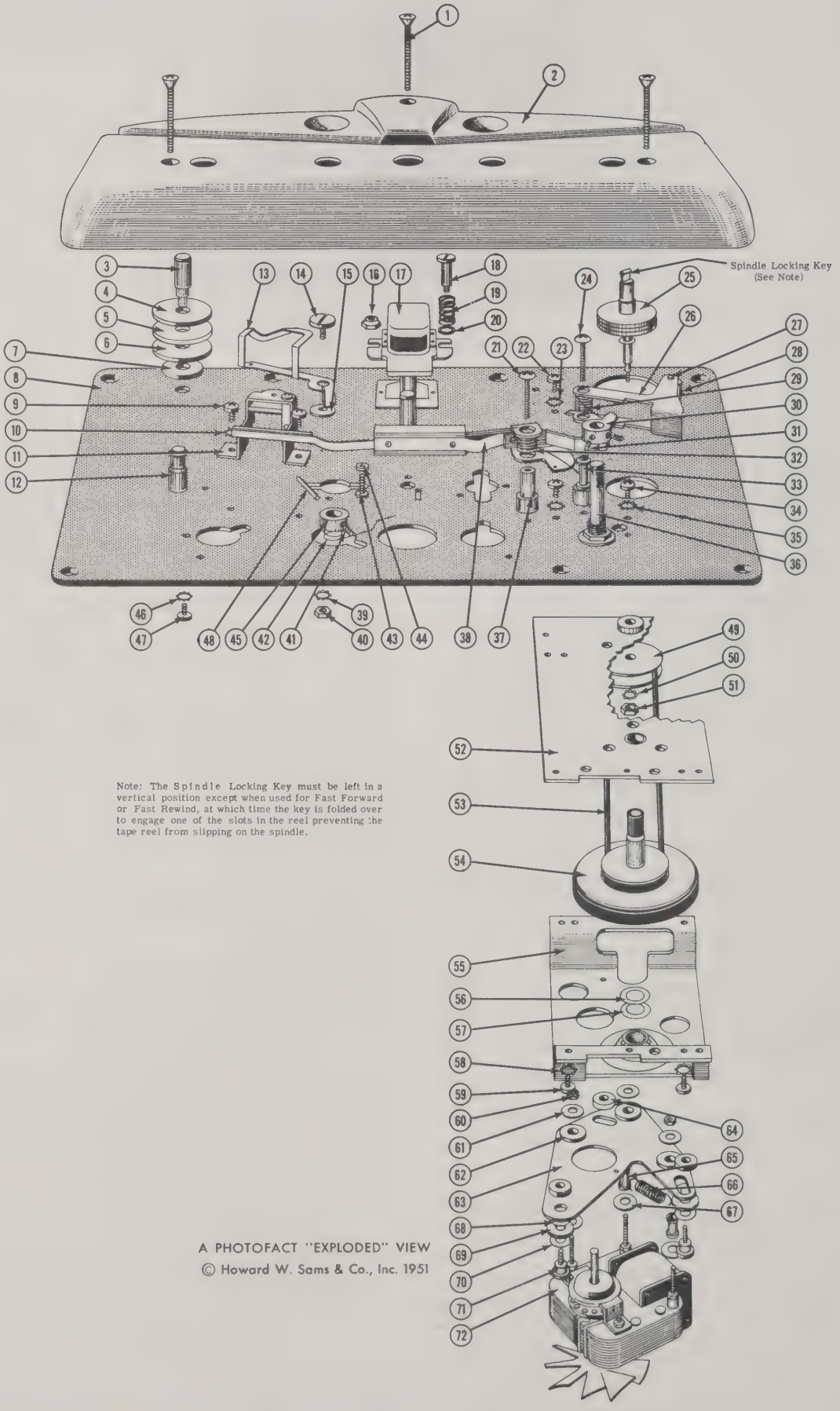
(c) Turn the "Play-Record" control to either "Record" or "MIC" position, thereby moving the tape erase lever (13) away from the erase pad.

(d) Loosen the two Screws (9) holding the erase head assembly.

(e) Turn the motor control slowly and observe the erase pad to see if it bears evenly on the face of the erase head. If not, rotate the head until this condition is corrected; then tighten screws.

Positioning Erase Lever:

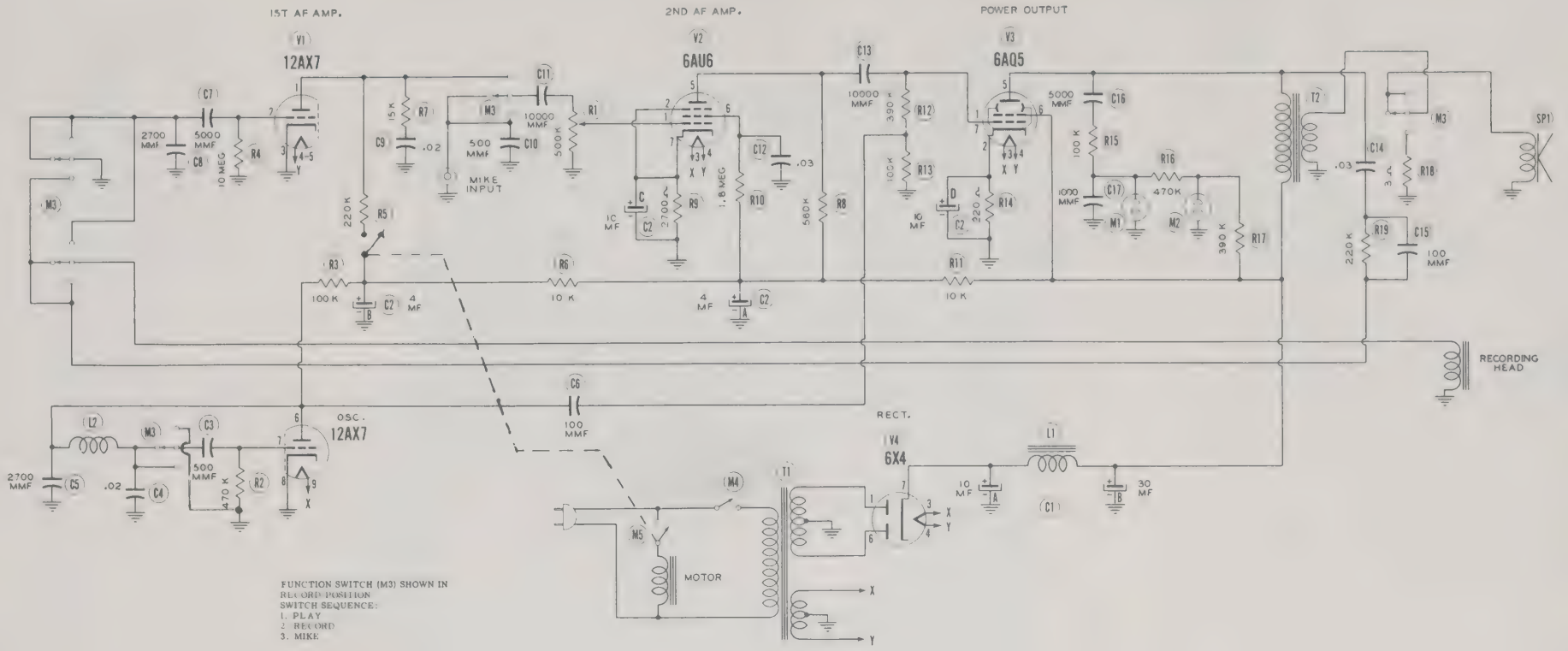
(a) Turn the "Play-Record" switch to "Play" position.



Note: The Spindle Locking Key must be left in a vertical position except when used for Fast Forward or Fast Rewind, at which time the key is folded over to engage one of the slots in the reel preventing the tape reel from slipping on the spindle.

A PHOTOFACT "EXPLODED" VIEW

© Howard W. Sams & Co., Inc. 1951



FUNCTION SWITCH (M3) SHOWN IN RECORD POSITION
SWITCH SEQUENCE:
1. PLAY
2. RECORD
3. MIKE

ALL MEASUREMENTS TAKEN WITH FUNCTION SWITCH IN "PLAY" POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	92VDC	-.5VDC	0V	3.3VAC	3.3VAC	95VDC	▲5-2.4VDC	0V	3.3VAC
V 2	6AU6	0V	1.1VDC	3.3VAC	3.3VAC	85VDC	33VDC	1.1VDC		
V 3	6AQ5	0V	0V	3.3VAC	3.3VAC	240VDC	240VDC	0V		
V 4	6X4	250VAC	0V	3.3VAC	3.3VAC	0V	250VAC	280VDC		

▲ MEASURED WITH FUNCTION SWITCH IN "RECORD POSITION
B TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†240KΩ	10 Meg.	0Ω	.1Ω	.1Ω	†120KΩ	†470KΩ	.0Ω	1Ω
V 2	6AU6	.5Ω	2700Ω	.1Ω	.1Ω	†57UKΩ	†1.8 Meg.	27 MΩ		
V 3	6AQ5	490KΩ	220Ω	.1Ω	.1Ω	†800Ω	†310Ω	490KΩ		
V 4	6X4	160Ω	Inf.	.1Ω	.1Ω	Inf.	160Ω	250KΩ		

† MEASURED FROM PIN 7 OF V4

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1951

AMPRO
MODEL 730

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	14107	Screw, #6-32 x 1-1/2" Phillips Oval Head (3 Req.)
2	16901	Control Panel
3	12820	Feed Reel Stud
4	13821-1	Reel Drive Disc
5	16913	Felt Washer, Reel Spindle
6	13820	Friction Disc, Tape Feed Reel
7	13822	Feed Reel Spacer
8	13830	Baseplate
9	14991	#6-32 x 1/4" Phillips Bd. Hd. Screw (2 Req.)
10	14972	#6 Ext. Lock Washer (2 Req.)
11	20401	Magnet Assembly-Tape Erase (Supplied as pre-set unit)
12	12821	Tape Guide Stud
13	13823	Tape Erase Lever
14	12822	Shoulder Screw, Tape Erase Lever
15	13825	Washer
16	14103	Lock Nut #6-40 Stl. NP
	14109	Plain Washer
17	20424	Tape Recorder Head Assembly
18	12842	Shoulder Screw, Recording Head
19	15035	Recording Head Adjustment Spring
20		Flat Washer
21	14101	#6-32 x 1"Phillips Truss Head Screw
22	14991	Phillips Head Screw #6 - 32 x 1/4"
23	14972	Lockwasher #6 Ext.
24	14101	#6-32 x 1" Phillips Truss Head Screw
25	20409	Takeup Spindle Assembly
26	20404	Pressure Roller Bracket Assembly (Includes Items 26, 27, 28)
26	13835	Pressure Roller Bracket
27	12849	Pressure Roller Pin
28	12850	Capstan Pressure Roller
29	15034	Pressure Roller Spring
30	12847	Pressure Roller Actuator
31	14780	6/32 x 1/8" Headless Cup Pt. Screw
32	15033	Pressure Pad Assembly Spring
33	12830	Pressure Roller Bracket Stud
34	14991	#6-32 x 1/4" Phillips Bd. Hd. Screw (3 Req.)
35		Ext. Lack Washer
36	18710	Rotary SPDT Switch
37	12823	Pressure Pad Bracket Stud
38	20403	Pressure Pad Bracket Assembly
39	14927	#6 Ext. Lock Washer
40	1452	#6-32 Hex Nut
41	14999	#4-40 x 3/16" Cup Pt. Headless Screw
42	15032	Erase Lever Spring
43	12836	Recording Head Adjustment Stud
44	14109	Washer
45	20414	Erase Lever Actuator Collar Assembly
46	14972	#6 Ext. Lock Washer
47	14991	#6-32 x 1/4" Phillips Bd. Hd. Screw
48		Pin for Collar Assembly Item 45
49	12824	Takeup Pulley
50	14972	#6 Ext. Lock Washer
51	1452	#6-32 Hex Nut
52	20431	Capstan and Takeup Assembly (Available as exchange unit only.)
53	16912	Takeup Drive Belt
54		Drive Pulley (Part of Item 52)
55		Drive Pulley Mounting Frame (Part of Item 52)
56 & 57		Spacing Washers (Part of Item 52)
58		Ext. Lock Washer
59		Screw
60	14916	#6-32 Hex Nut
61	14131	Washer
62	16904	Rubber Grommet
63	13844	Motor Mounting Plate
64	12838	Motor Mounting Spacer Washer
65	12834	Motor Mounting Sleeve
66	15036	Motor Pressure Spring
67	14131	Washer
68	1313-10	Washer
69	16923	Felt Washer
70	13940	Plain Washer
71	12837	Shoulder Screw-Motor Mounting.
72	18730-1	Motor Assembly

ELECTRICAL PARTS LIST

Item No.	Part No.	Use & Description
V1	18497	12AX7, Oscillator - 1st AF Amplifier
V2	18699	6AU6, 2nd AF Amplifier
V3	18701	6AQ5, Power Output
V4	18700	6X4, Rectifier
C1A	18715	Filter, 10 Mfd. @ 350V., Electrolytic
C1B		Filter, 30 Mfd. @ 350V., Electrolytic
C2A	18716	Decoupling, 4 Mfd. @ 350V., Electrolytic
C2B		Decoupling, 4 Mfd. @ 350V., Electrolytic
C2C		2nd AF Amp. Cathode Bypass, 10 Mfd. @ 15V., Electrolytic
C2D		Output Cathode Bypass, 10 Mfd., @ 15V., Electrolytic
C3	18489	Oscillator Grid Cap., 500 Mmf.
C4	18731	Fixed Trimmer, .02 Mfd. @ 400V.
C5	18733	Fixed Trimmer, 2700 Mmf.
C6	18493	Oscillator Coupling, 100 Mmf.
C7	18488	Audio Coupling, 5000 Mmf.
C8	18488	Tone Compensation, 2700 Mmf.*
C9	18731	Tone Compensation, .02 Mfd. @ 400V.
C10	18493	Tone Compensation, 500 Mmf.**
C11	18488	Audio Coupling, 10000 Mmf.*
C12	18732	2nd AF Screen Bypass, .03 Mfd. @ 400V.
C13	18488	Audio Coupling, 10000 Mmf.*
C14	18732	Audio Coupling, .03 Mfd. @ 400V.
C15	18493	Tone Compensation, 100 Mmf.
C16	18488	Indicator Coupling, 5000 Mmf.
C17	18485	Indicator Bypass, 1000 Mmf.
R1	18709	Volume Control, 500K Ohm
R2	18474	Oscillator Grid, 470K Ohm, 1/2 Watt
R3	18471	Oscillator Plate, 100K Ohm, 1/2 Watt
R4	17554	1st AF Amp. Grid, 10 Meg., 1/2 Watt
R5	17959	1st AF Amp. Plate, 222 Ohm, 1/2 Watt
R6	17553	Decoupler, 10K Ohm, 1/2 Watt
R7	18072	Tone Compensation, 15K Ohm, 1/2 Watt
R8	18467	2nd AF Amp. Plate, 560K Ohm, 1/2 Watt
R9	18582	2nd AF Amp. Cathode, 2700 Ohm, 1/2 Watt
R10	18436	2nd AF Amp. Screen, 1.8 Meg. 1/2 Watt
R11	18209	Decoupling, 10K Ohm, 1 Watt
R12	18729	Output Grid, 390K Ohm, 1/2 Watt, Note 1
R13	18471	Output Grid, 100K Ohm, 1/2 Watt, Note 2
R14	18719	Output Cathode, 220 Ohm, 1 Watt
R15	18471	Neon Indicator Net, 100K Ohm, 1/2 Watt
R16	18474	Voltage Divider, 470K Ohm, 1/2 Watt
R17	18729	Series Neon Lamp, 390K Ohm, 1/2 Watt
R18	18718	Voice Coil Shunt, 3 Ohm, 5 Watt, Wirewound
R19	17959	Tone Compensation, 220K Ohm, 1/2 Watt, Note 3
		Note 1 - Some sets use 270K Ohm in this Application
		Note 2 - Some sets use 220K Ohm in this Application.
		Note 3 - Some sets use 100K Ohm in this Application.
T1	18728	Power Transformer
T2	18727	Audio Output Transformer
SP1	18734	4" x 6" PM Speaker
SP2		Speaker Cone, 4 Ohm Voice Coil
L1	18726	Filter Choke
L2	18724	Oscillator Coil
M1	16915-1	Neon Indicator Lamp, Type NE51
M2	16915-1	Neon Indicator Lamp, Type NE51
M3	18713	Record-Listen Switch (Wafer)
M4	18710	Amplifier On-Off Switch
M5	18696	Motor On-Off Switch

* Some sets use 5000 Mmf. in this application.
** Some sets use 100 Mmf. in this application.

PHOTOFACT* Folder

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

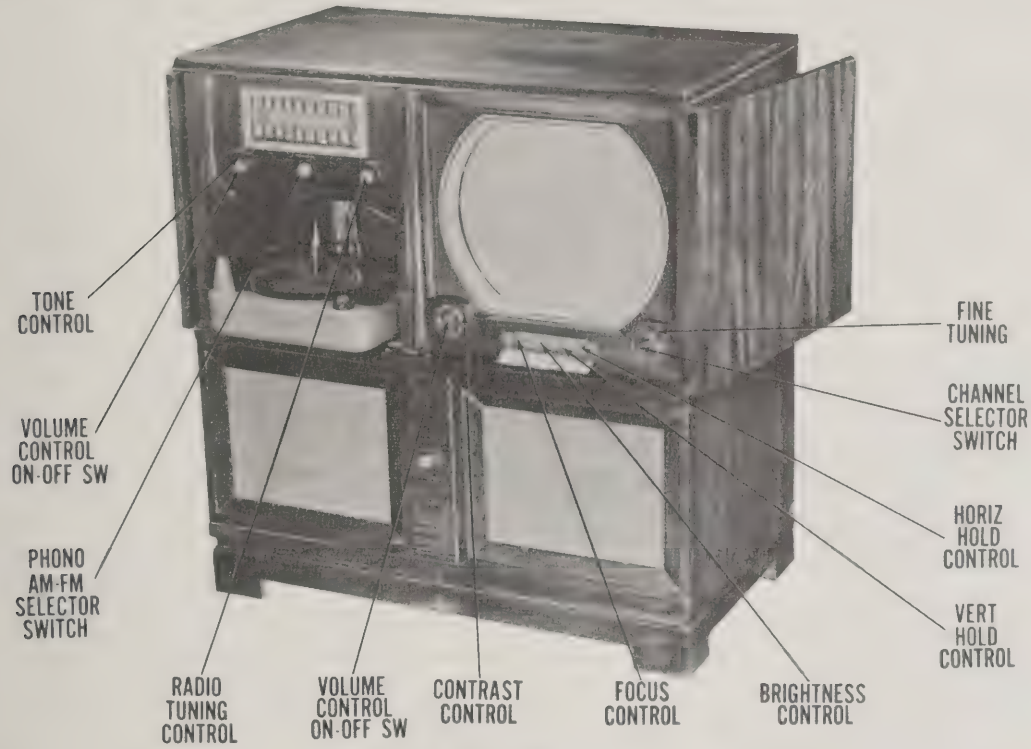
EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-51 SET 133 FOLDER 5

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)



EMERSON MODEL 666B

TRADE NAME	Emerson, Model 666B (TV Ch. 120135-B and Radio Ch. 120132-B)
MANUFACTURER	Emerson Radio And Phono Corp., 111 Eighth Ave., New York (11), New York
TYPE SET	TV-AM-FM-Phono Combination Receiver
TUBES	Thirty One
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	(TV) 1.82 Amp. @ 117 Volts AC (Radio) .34 Amp. @ 117 Volts AC
TUNING RANGE	(TV) Channels 2 thru 13 (AM) 540-1620KC (FM) 88-108MC

INDEX

Alignment Instructions 6, 7
Dial Cord Stringing 24
Disassembly Instructions 23
Horizontal Sweep Circuit Adjustment 23
Parts List And Description ..... 15 thru 19
Photographs
- Cabinet - Rear View 23
- Capacitor Identification (Radio) 13
- Capacitor Identification (TV) 4, 9
- Chassis - Top View (Radio) 14
- Chassis - Top View (TV) 3
- RF Tuner (TV) 10
- Resistor Identification (Radio) 20
- Resistor Identification (TV) 12, 21

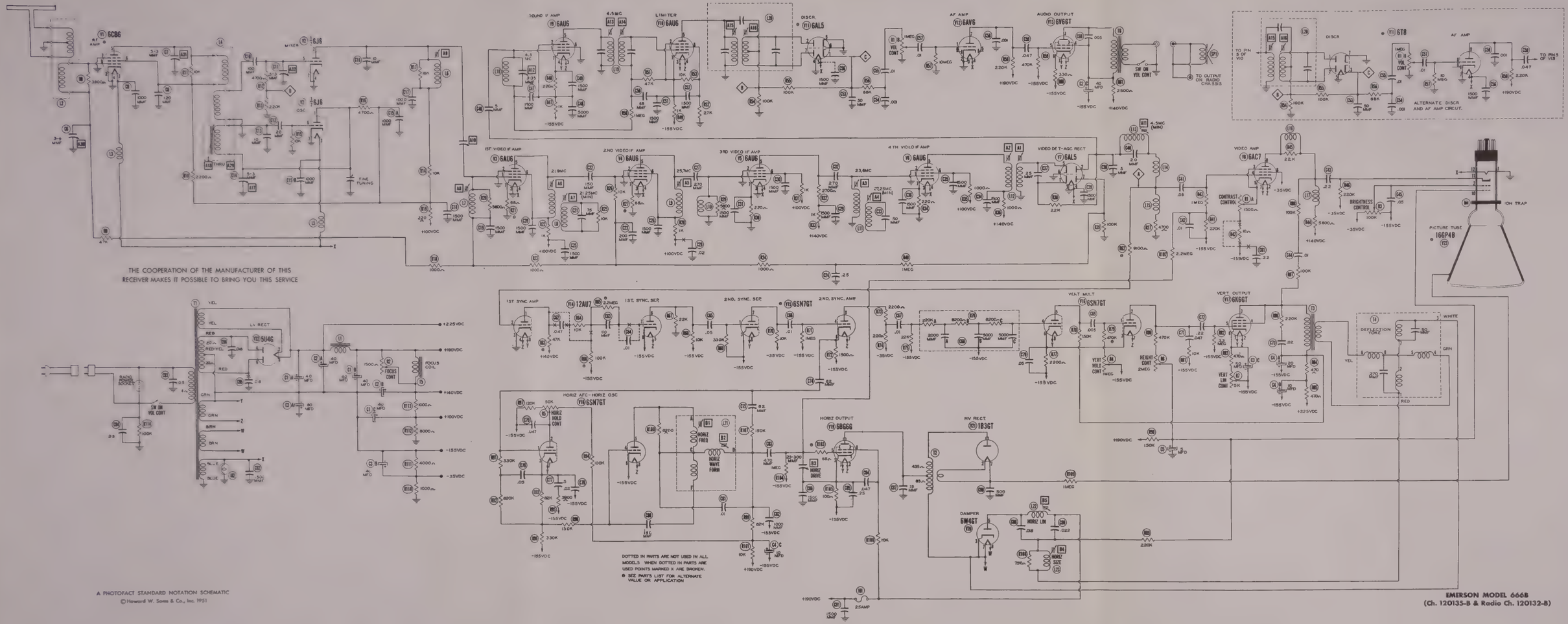
Schematic (Radio) 11, 22
Schematic (TV) 2
Tube Placement Chart 5
Voltage And Resistance Measurements (Radio) 11, 22
Voltage And Resistance Measurements (TV) 8

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT - SEE PHOTOFACT FOLDER #13 - SET #107 OR RECORD CHANGER MANUAL CM-3.

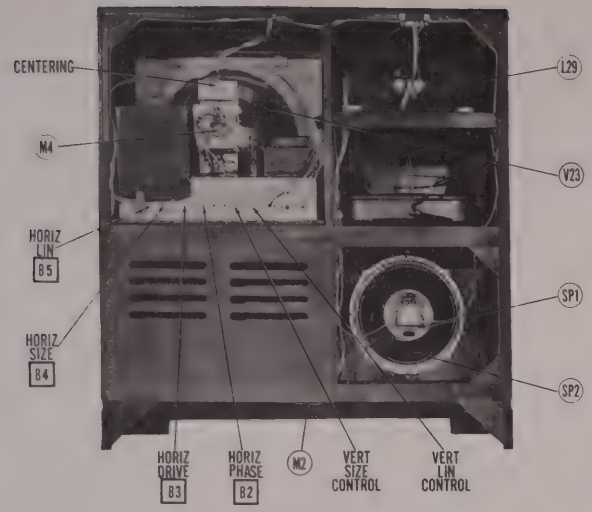
HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENTS

Connect a short across C81.
Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to maximum counter-clockwise.
Starting with the slug all the way out, adjust the horizontal frequency slug, (B1) inward until the picture synchronizes horizontally.
Remove the short from C81 and connect the vertical input lead of an oscilloscope to terminal C of L21.
Adjust the horizontal phasing slug, (B2) until the broad and narrow peaks of the waveform on the oscilloscope are of equal height as shown in figure 8. If necessary during adjustment of B2, adjust B1 to keep the picture synchronized.
Momentarily interrupt the signal by switching to another channel and back again. The picture should be out of sync and show 4 or 5 sloping bars. If more than 5, or less than 4 bars are present adjust B1 until 4 or 5 bars are present.
Turn the hold control slowly clockwise. The picture should synchronize after approximately 1/4 turn and should remain in sync over the entire range of the hold control.

HORIZONTAL DRIVE, WIDTH, AND LINEARITY ADJUSTMENTS

Adjust the horizontal drive trimmer, (B3) clockwise as far as possible without crowding the right half of the picture.
Adjust the width slug (B4) until the picture fills the mask horizontally.
Adjust the horizontal linearity slug, (B5) until the picture is symmetrical from left to right. Readjustment of B3 may be necessary to obtain best linearity.

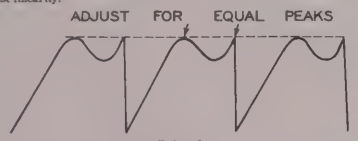


FIG. 8

DISASSEMBLY INSTRUCTIONS

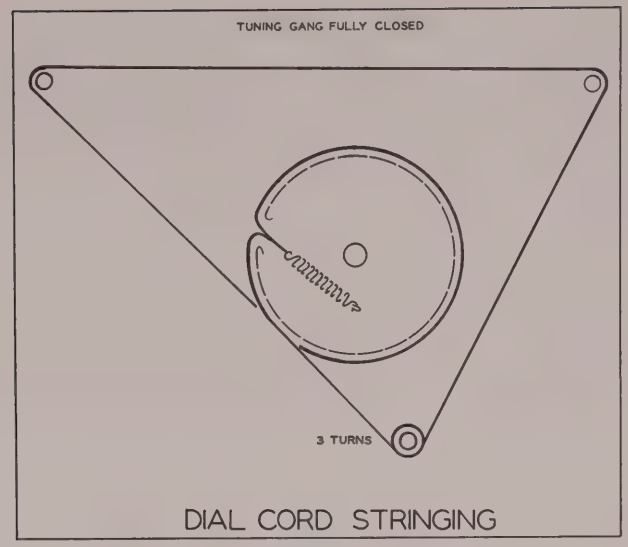
TV CHASSIS REMOVAL

1. Remove four push-on type control knobs.
2. Remove fifteen wood screws holding rear cover in cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect radio audio input plug.
5. Remove cabinet light type #47.
6. Remove six 3/8" hex head screws from chassis. Remove chassis.

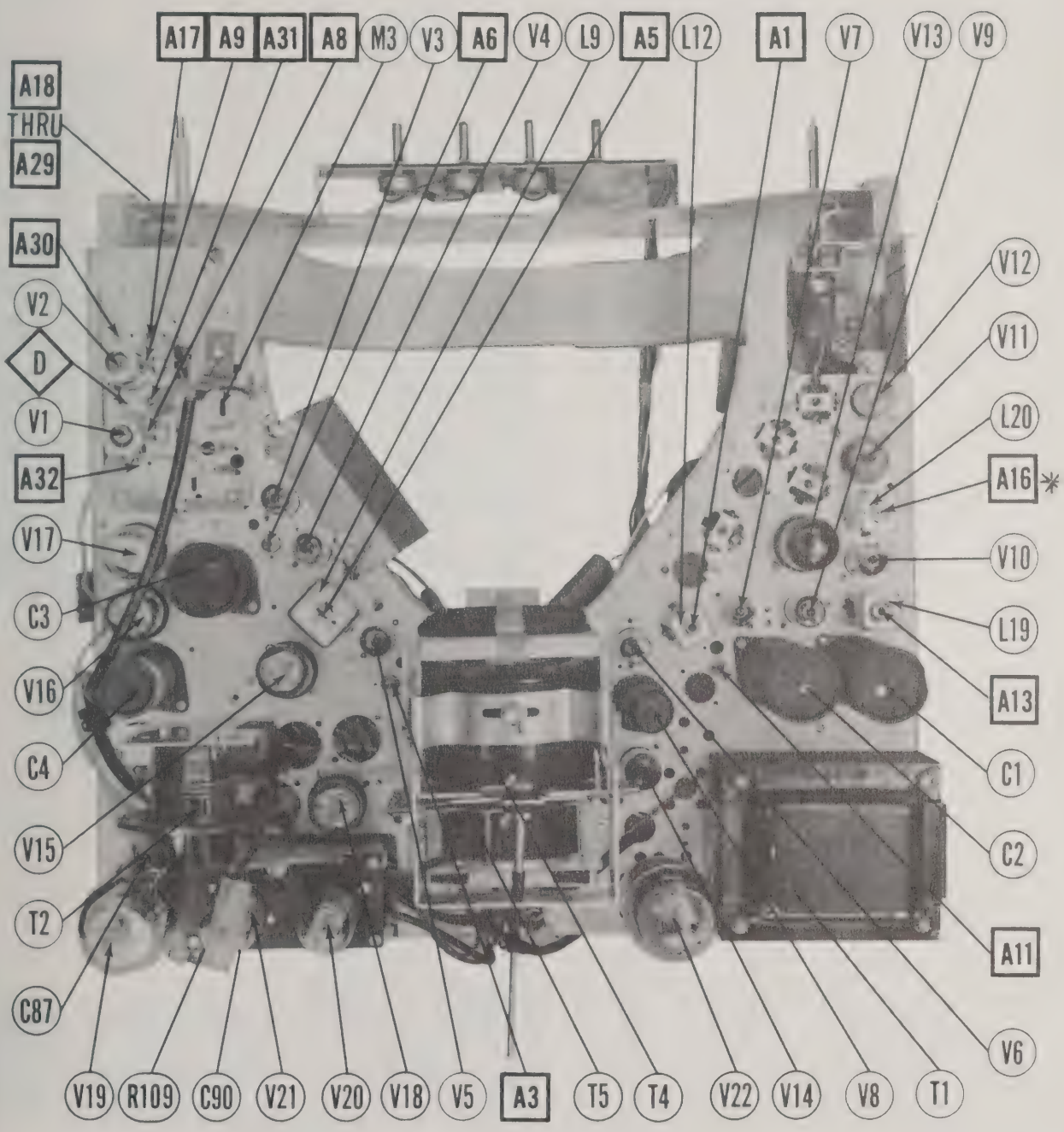
NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

RADIO CHASSIS REMOVAL

1. Remove cabinet pilot light type 117 V-10 watt.
2. Remove four push-on type control knobs.
3. Disconnect phono audio input plug.
4. Disconnect phono ground lead.
5. Disconnect speaker.
6. Disconnect phono power plug.
7. Remove three 5/16" hex head bolts from chassis. Remove chassis.
8. Remove four 5/16" hex nuts from speaker. Remove speaker.

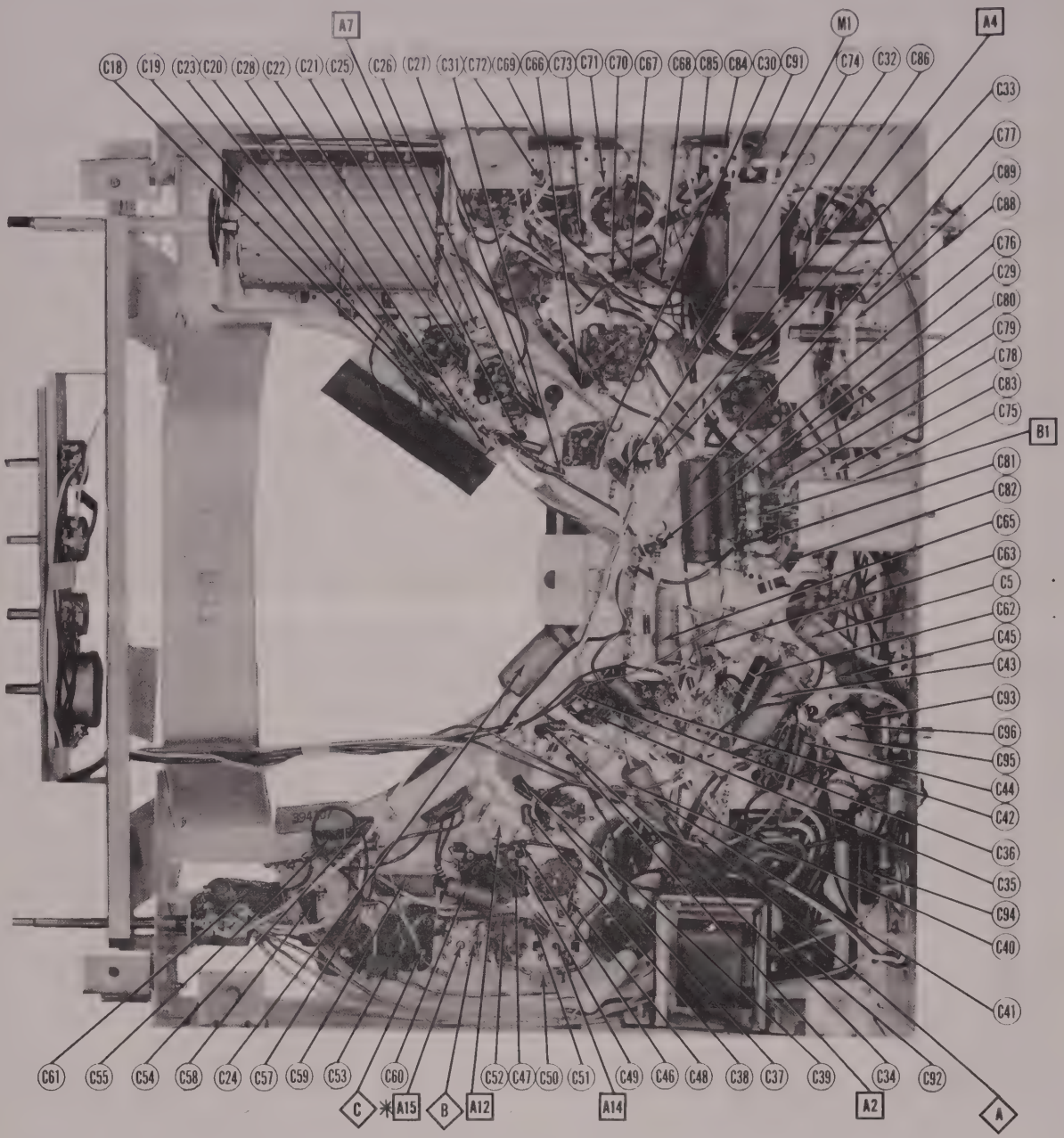


DIAL CORD STRINGING



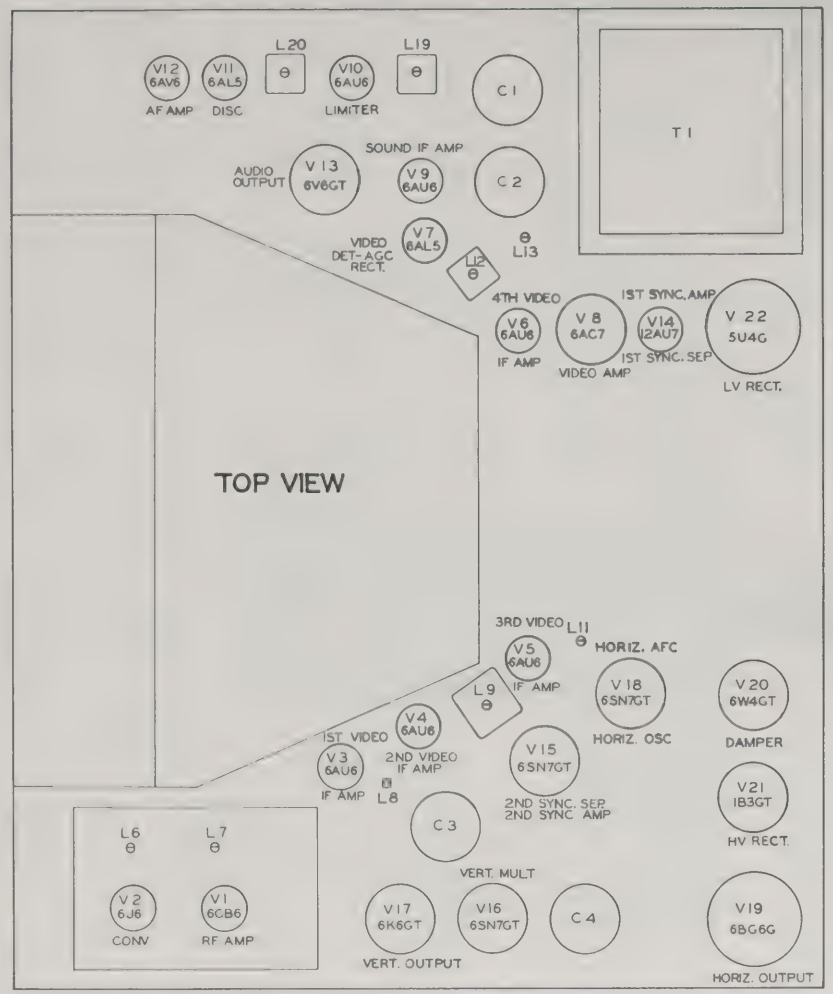
*SEE NOTE IN ALIGNMENT INSTRUCTIONS

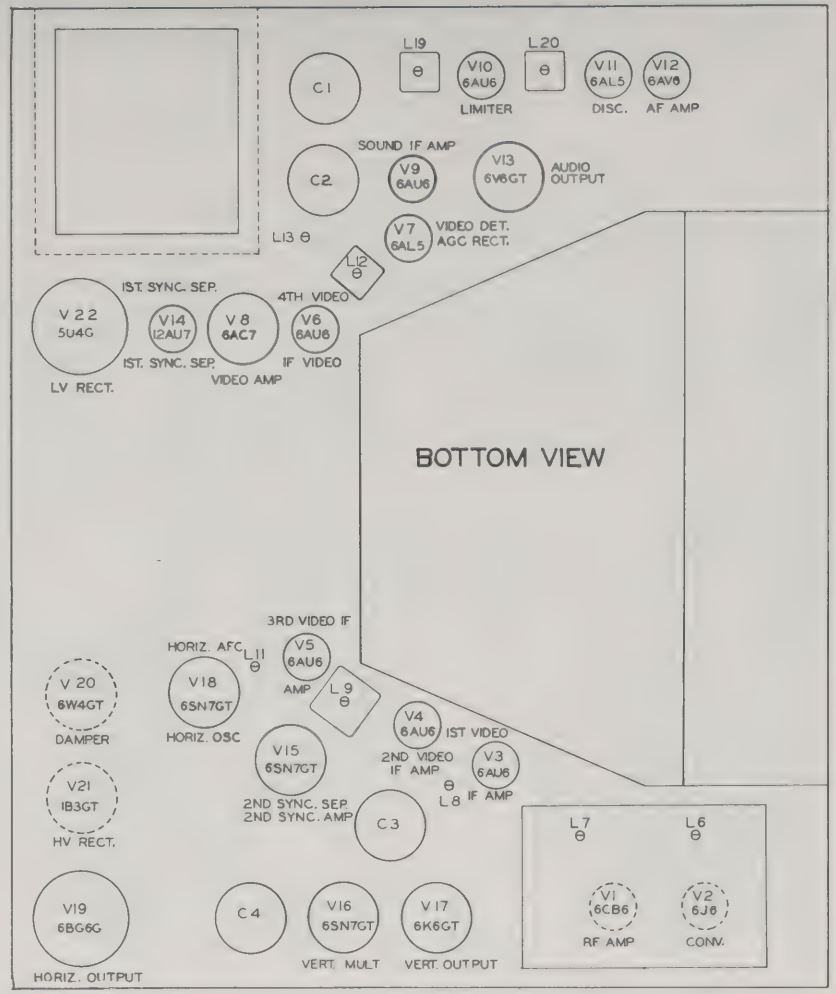
CHASSIS TOP VIEW



✱ SEE NOTE IN ALIGNMENT INSTUCTIONS

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V18) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the junction of R34 and R40, positive to chassis.
Connect the synchronised sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (grid) of 6AU6 (V4). Low side to chassis.	23.5MC (10MC SWP)	21.9MC 25.75MC	Any	Vert. amp thru 10KΩ to Point ⓐ. Low side to chassis.	A1, A2	Adjust for response curve similar to figure 1.
2.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V3). Low side to chassis	Not Used	23.6MC	"	USE VTVM DC probe to Point ⓐ. Common to chassis.	A3	Adjust for maximum deflection.
3.	"	"	"	27.25MC	"	"	A4	Adjust for MINIMUM deflection.
4.	"	"	"	25.7MC	"	"	A5	Adjust for maximum deflection.
5.	"	"	"	21.9MC	"	"	A6	Adjust for maximum deflection.
6.	"	"	"	21.25MC	"	"	A7	Adjust for MINIMUM deflection.
7.	"	"	23.5MC (10MC SWP)	21.25MC 25.75MC	"	Vert. amp. thru detector probe (figure 2) to Pin 5 (plate) of 6AU6 (V3). Low side to chassis.	A8, A9, A10	Adjust for response curve similar to figure 3. If necessary retouch A3, A5 and A6 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to Pin 5 (cathode) of 6AL5 (V7). Low side to chassis	4.5MC (400 % Mod.)	Any	DC probe thru detector (figure 2), to Pin 11 of picture tube. Common to chassis	A-11	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

These receivers employ one of two discriminator transformers. On transformer 708031 (Sickles) the secondary, (A16), the secondary is on the bottom. On transformer 708031B (Automatic) the secondary is on top.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to Pin 5 (cathode) of 6AL5 (V2) Low side to chassis.	4.5MC (400 % Mod.)	Any	DC probe thru 10KΩ to Point ⓐ Common to chassis	A13, A15, A14, A15	Adjust for maximum deflection.
10.	"	"	"	"	DC probe to Point ⓐ. Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

See note under SOUND VTVM ALIGNMENT
Use frequency modulated signal with 60 % modulation and 450KC sweep. Use 120 % sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	.001MFD	High side to Pin 5 (cathode) of 6AL5 (V7). Low side to chassis	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to Point ⓐ. Low side to chassis.	A12, A13, A14, A15	Adjust for maximum amplitude and symmetry as per figure 4.
12.	"	"	"	"	"	Vert. amp. to Point ⓐ. Low side to chassis.	A16	Adjust A16 so 4.5MC occurs at center of crossover lines as per figure 5. SLIGHTLY retouch A15 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The overall oscillator circuit adjustment (A17) has been properly adjusted at the factory and should not be adjusted in the field.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point ⓐ Low side to chassis.	A18	Adjust to place video marker at 50% shown in figure 6.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A19	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A20	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A21	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A22	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A23	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A24	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A25	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A26	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A27	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A28	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A29	

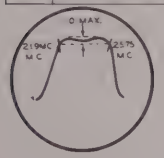


FIG. 1

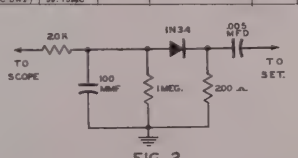


FIG. 2

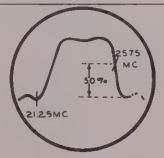


FIG. 3

FIG. 4

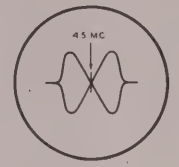


FIG. 5

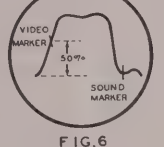


FIG. 6

FIG. 7

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	13	Vert. amp. thru 10KΩ to Point ⓐ. Low side to chassis.	A30, A31, A32	Adjust for response curve similar to figure 7 with markers above 90%.
15.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 7. If markers fall below 70% on any channel make slight adjustment of A30, A31 and A32 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set the pointer to the index mark at the left hand end of the dial backplate.
Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
16.	.1MFD	High side to Pin 7 (grid) of 12BE6 (V26). Low side to chassis.	455KC (400 % Mod.)	AM (Center)	Tuning gang fully open	Across Voice Coil.	A33, A34, A35, A36	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
17.		Loop	1620KC	"	"	"	A37	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
18.		Loop	1400KC	"	Tune for max. output	"	A38	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
19.	.01MFD	High side to Pin 1 (grid) of 6BJ6 (V27). Low side to chassis.	10.7MC (Unmod.)	FM (CW)	Tuning gang fully open.	DC probe thru 1 meg to Point ⓐ Common to chassis.	A39, A40 A41	Adjust for maximum deflection.
20.	"	High side to Pin 7 (grid) of 12AT7 (V25). Low side to chassis.	"	"	"	"	A42, A43	"
21.	"	"	"	"	"	DC probe to Point ⓐ. Common to chassis.	A44	"
22.	"	"	"	"	"	DC probe to Point ⓐ. Common to chassis.	A45	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 % modulation and 450KC sweep. Use 120 % sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
19.	.01MFD	High side to Pin 1 (grid) of 6BJ6 (V27). Low side to chassis.	10.7MC (450KC SWP)	FM (CW)	Point of non-interference	Vert. amp. thru 1 meg to Point ⓐ Low side to chassis.	A39, A40, A41	Adjust for maximum amplitude and symmetry as per figure 8.
20.	"	High side to Pin 7 (grid) of 12AT7 (V25). Low side to chassis.	"	"	"	"	A42, A43	"
21.	"	"	"	"	"	Vert. amp. to Point ⓐ. Low side to chassis.	A44, A45	Adjust A45 so 10.7MC occurs at center of crossover lines as per figure 10. Adjust A44 for maximum amplitude and straightness of crossover lines. Continue with step 23.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
23.	Two 120Ω carbon resistors	Across FM antenna terminals with 120Ω in each lead.	109MC (Unmod.)	FM	Tuning gang fully open.	DC probe thru 1 meg to Point ⓐ Common to chassis.	A46	Adjust for maximum deflection.
24.	"	"	106MC	"	Tune for max. deflection	"	A47	"

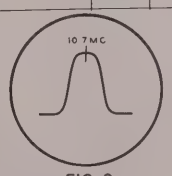


FIG. 9

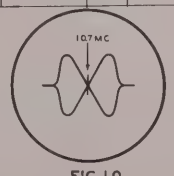


FIG. 10

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-.5VDC	0V	6.3VAC	0V	70VDC	70VDC	0V		
V 2	6J6	60VDC	65VDC	6.3VAC	0V	-1.2VDC	§ -3.6VDC	0V		
V 3	6AU6	-.5VDC	0V	0V	6.3VAC	95VDC	95VDC	.4VDC		
V 4	6AU6	-.5VDC	0V	0V	6.3VAC	95VDC	95VDC	.4VDC		
V 5	6AU6	0V	0V	0V	6.3VAC	130VDC	95VDC	1VDC		
V 6	6AU6	0V	0V	0V	6.3VAC	140VDC	95VDC	1.2VDC		
V 7	6AL5	-.1VDC	-.4VDC	0V	6.3VAC	0V	0V	-.8VDC		
V 8	6AC7	0V	# 6.3VAC	# 1.6VDC	# -.2VDC	# 1.6VDC	#120VDC	# 0V	# 295VDC	
V 9	6AU6	#1.2VDC	#6.7VDC	# 6.3VAC	# 0V	# 155VDC	#155VDC	#8.2VDC		
V 10	6AU6	# 5VDC	# 6.6VDC	# 0V	# 6.3VAC	# 155VDC	# 45VDC	# 6.6VDC		
V 11	6AL5	-.4VDC	-.3VDC	6.3VAC	0V	0V	0V	-.3VDC		
V 12	6AV6	-.6VDC	0V	0V	6.3VAC	0V	0V	90VDC		
V 13	6V6GT	0V	# 6.3VAC	# 200VDC	# 210VDC	# 0V	# 0V	# 0V	# 11VDC	
V 14	12AU7	45VDC	-.5VDC	0V	# 6.3VAC	# 6.3VAC	# 40VDC	# -1VDC	# 0V	# 0V
V 15	6SN7GT	# -2VDC	# 85VDC	# 0V	# -6VDC	# 115VDC	# 2.6VDC	# 6.3VAC	# 0V	
V 16	6SN7GT	# -12VDC # -40VDC	# 200VDC # 70VDC	# 4.7VDC	# 0V	# 105VDC	# 4.7VDC	# 6.3VAC	# 0V	
V 17	6K6GT	0V	# 6.3VAC	# 360VDC	#360VDC	#0V	#360VDC	#0V	# 50VDC #15VDC	
V 18	6SN7GT	#-1.4VDC #-2VDC	#185VDC #130VDC	#-11VDC #-.7VDC	#-40VDC #-45VDC	#200VDC #150VDC	#0V	#0V	#6.3VAC	
V 19	6BG6G	0V	#6.3VAC	#11VDC	#-9VDC	#-9VDC	#-.7VDC	#0V	#270VDC	Top Cap *
V 20	6W4GT	0V	0V	460VDC	0V	185VDC	0V	460VDC	460VDC	
V 21	1B3GT	* DO NOT MEASURE						*		
V 22	5U4G	0V	225VDC	0V	210VAC	0V	210VAC	0V	225VDC	
V 23	16GP4B	0V	-35VDC -155VDC	PIN 10 320VDC	PIN 11 -30VDC	PIN 12 6.3VAC				

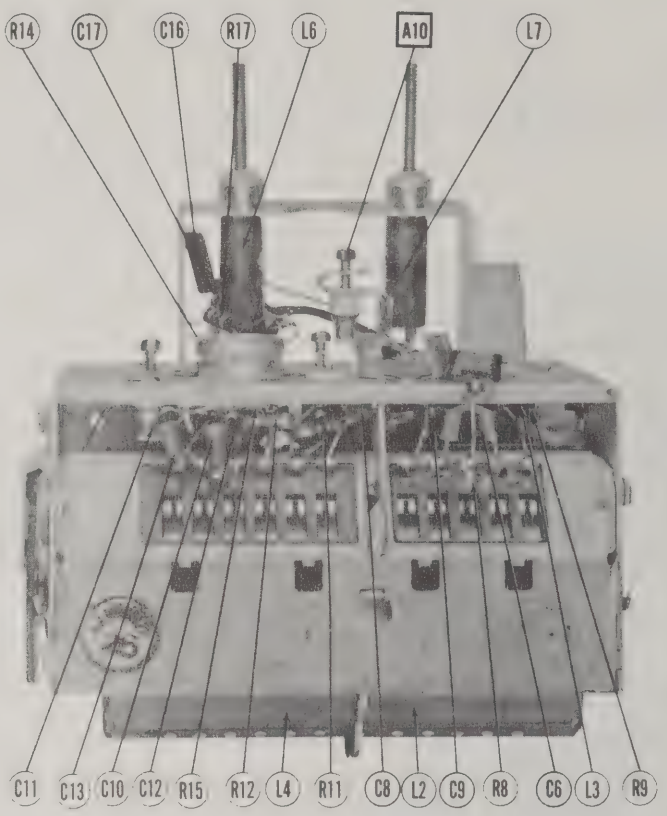
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL COUNTERCLOCKWISE
§ TAKEN WITH VACUUM TUBE VOLTMETER
# MEASURED FROM -155VDC POINT
* DO NOT MEASURE

RESISTANCE READINGS

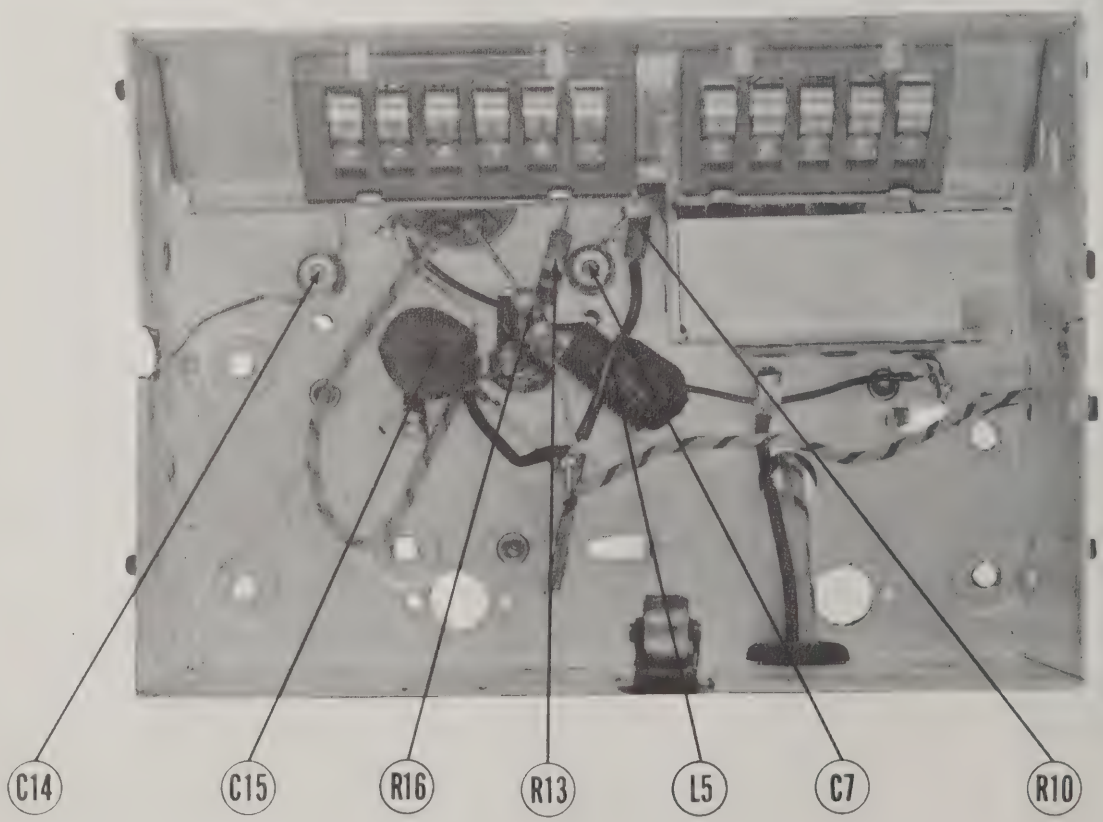
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1.1Meg	0Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	0Ω		
V 2	6J6	†6.7KΩ	†12KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AU6	1.1Meg	0Ω	0Ω	.1Ω	†2.8KΩ	†2.8KΩ	68Ω		
V 4	6AU6	1.1Meg	0Ω	0Ω	.1Ω	†2.8KΩ	†2.8KΩ	68Ω		
V 5	6AU6	2.7Ω	0Ω	0Ω	.1Ω	†4.5KΩ	†2.8KΩ	220Ω		
V 6	6AU6	.2Ω	0Ω	0Ω	.1Ω	†1.8KΩ	†2.8KΩ	220Ω		
V 7	6AL5	27KΩ	4.7KΩ	0Ω	.1Ω	1.2Ω	0Ω	100KΩ		
V 8	6AC7	0Ω	#.1Ω	#1.5KΩ	#1Meg	#1.5KΩ	1KΩ	#0Ω	†6.4KΩ	
V 9	6AU6	#1Meg	#1KΩ	#.1Ω	#0Ω	1.6Ω	0Ω	#1.2KΩ		
V 10	6AU6	#48KΩ	#1KΩ	#0Ω	#.1Ω	2.1Ω	10KΩ	#1KΩ		
V 11	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 12	6AV6	10Meg	0Ω	0Ω	.1Ω	Inf.	Inf.	†220KΩ		
V 13	6V6GT	Inf.	#.1Ω	†3.6KΩ	†3.3KΩ	#470KΩ	#0Ω	#0Ω	#330Ω	
V 14	12AU7	†47KΩ	14KΩ	0Ω	#.1Ω	#.1Ω	9KΩ	#2.3Meg	#0Ω	#0Ω
V 15	6SN7GT	#330KΩ	11KΩ	#0Ω	#1Meg	3.4KΩ	#1.5KΩ	#.1Ω	#0Ω	
V 16	6SN7GT	#470KΩ #1.5Meg	▲620KΩ ▲2.3Meg	#2.2KΩ	#60KΩ	†150KΩ	#2.2KΩ	#.1Ω	#0Ω	
V 17	6K6GT	Inf.	#.1Ω	†1.4KΩ	†1.4KΩ	#3.3Meg	†220KΩ	#0Ω	#5.5KΩ #470Ω	
V 18	6SN7GT	#1.5Meg	†80KΩ	#410KΩ	#480KΩ	†92KΩ	#0Ω	#0Ω	#.1Ω	
V 19	6BG6G	Inf.	#.1Ω	#100Ω	#800Ω	#800Ω	#220KΩ	#0Ω	†10KΩ	Top Cap ▲85Ω
V 20	6W4GT	Inf.	Inf.	160KΩ	Inf.	†145Ω	Inf.	▲0Ω	▲.2Ω	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Top Cap ▲520Ω
V 22	5U4G	Inf.	#10KΩ	Inf.	4KΩ	Inf.	4KΩ	Inf.	#10KΩ	
V 23	16GP4B	0Ω	#30KΩ #0Ω	PIN 10 ▲150KΩ	PIN 11 220KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL COUNTERCLOCKWISE
MEASURED FROM -155 VDC POINT
† MEASURED FROM PIN 8 OF V22
▲ MEASURED FROM PIN 3 OF V20

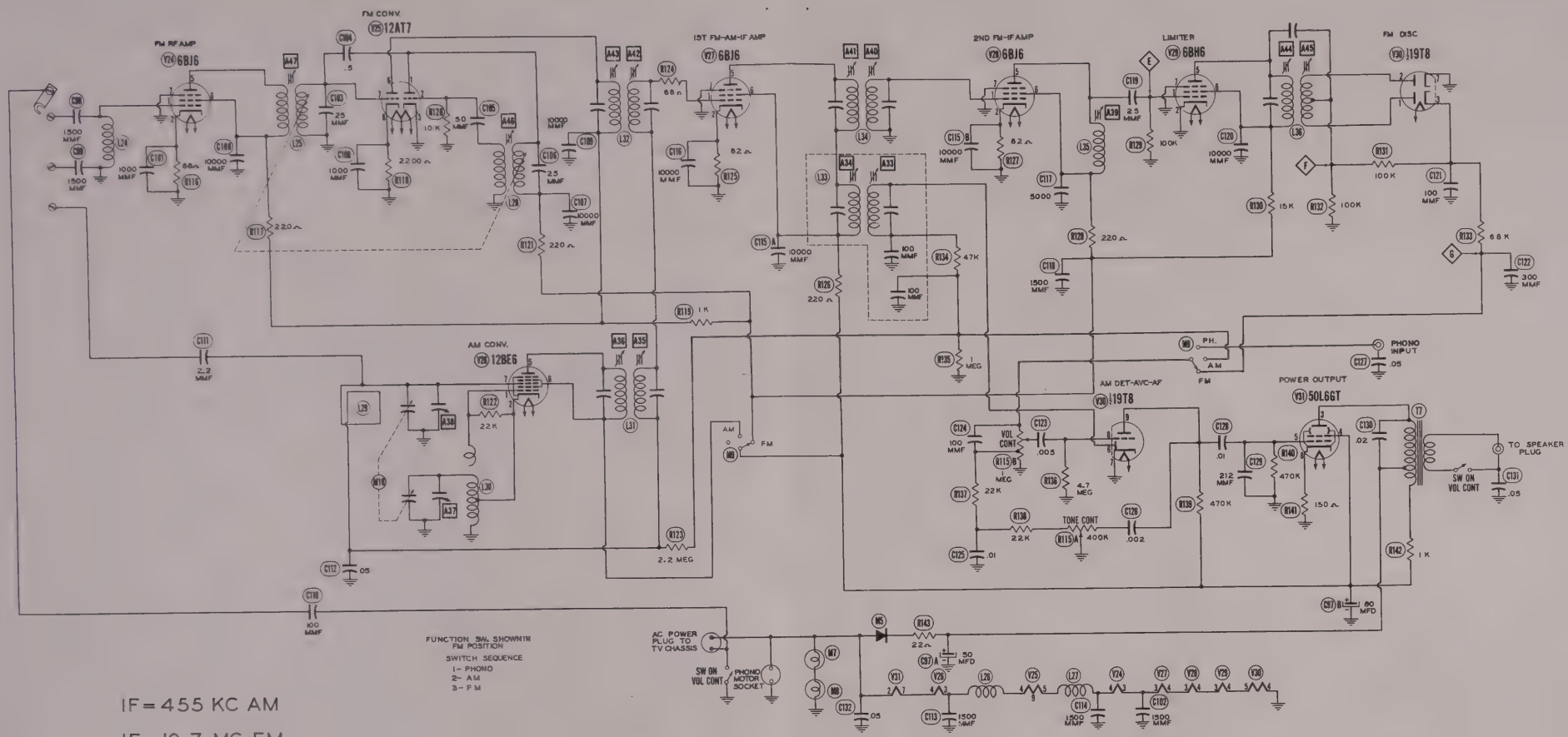
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 24	6BJ6	0V	† .6VDC	38VAC	44VAC	† 75VDC ■ 0V	† 75VDC ■ 0V	0V		
V 25	12AT7	† 85VDC ■ 0V	† † -2.9VDC	0V	58VAC	44VAC	† 80VDC ■ 0V	0V	† 1.8VDC	50 VAC
V 26	12BE6	■ 6-7.8VDC	0V	58VAC	58VAC	† 0V ■ 100VDC	† 0V ■ 100VDC	-.1VDC		
V 27	6BJ6	-.1VDC	† .6VDC ■ .8VDC	38VAC	32VAC	† 85VDC ■ 100VDC	† 85VDC ■ 100VDC	0V		
V 28	6BJ6	0V	† .6VDC	32VAC	26VAC	† 85VDC ■ 0V	† 85VDC ■ 0V	0V		
V 29	6BH6	† -.2VDC	0V	26VAC	20VAC	† 45VDC ■ 0V	† 45VDC ■ 0V	0V		
V 30	19T8	† -.5VDC	† -.5VDC	† .3VDC	0V	20VAC	■ -.5VDC	0V	-.5VDC	† 36VDC ■ 38VDC
V 31	50L6GT	0V		117VAC	117VDC	† 90 ■ 100VDC	0V	0V	58VAC	† 5.6VDC ■ 6.6VDC

† TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 24	6BJ7	0Ω	68Ω	36Ω	42Ω	† †† 2.3KΩ ■ Inf.	†† 2.3KΩ ■ Inf.	0Ω		
V 25	12AT7	† †† 1.3KΩ ■ Inf.	10KΩ	0Ω	50Ω	42Ω	† †† 2.1KΩ ■ Inf.	0Ω	2.2KΩ	48Ω
V 26	12BE6	22KΩ	.5Ω	50Ω	56Ω	† Inf. ■ †† 1.1KΩ	† Inf. ■††† 1.1KΩ	† 3.3Meg ■ 2.7Meg		
V 27	6BJ6	† 3.2Meg ■ 2.7Meg	82Ω	38Ω	30Ω	†† 1.3KΩ	†† 1.3KΩ	0Ω		
V 28	6BJ6	1.2Ω	82Ω	30Ω	24Ω	† †† 1.3KΩ ■ Inf.	† †† 1.3KΩ ■ Inf.	0Ω		
V 29	6BH6	100KΩ	0Ω	24Ω	18Ω	† †† 100KΩ ■ Inf.	† †† 100KΩ ■ Inf.	0Ω		
V 30	19T8	† 95KΩ ■ 100KΩ	† 95KΩ ■ 100KΩ	† 160KΩ ■ 200KΩ	0Ω	18Ω	† 550KΩ ■ 1Meg	0Ω	4.7Meg	†† 470KΩ
V 31	50L6GT	Inf.	95Ω	†† 150Ω	†† 1.1KΩ	470KΩ	Inf.	56Ω	150Ω	

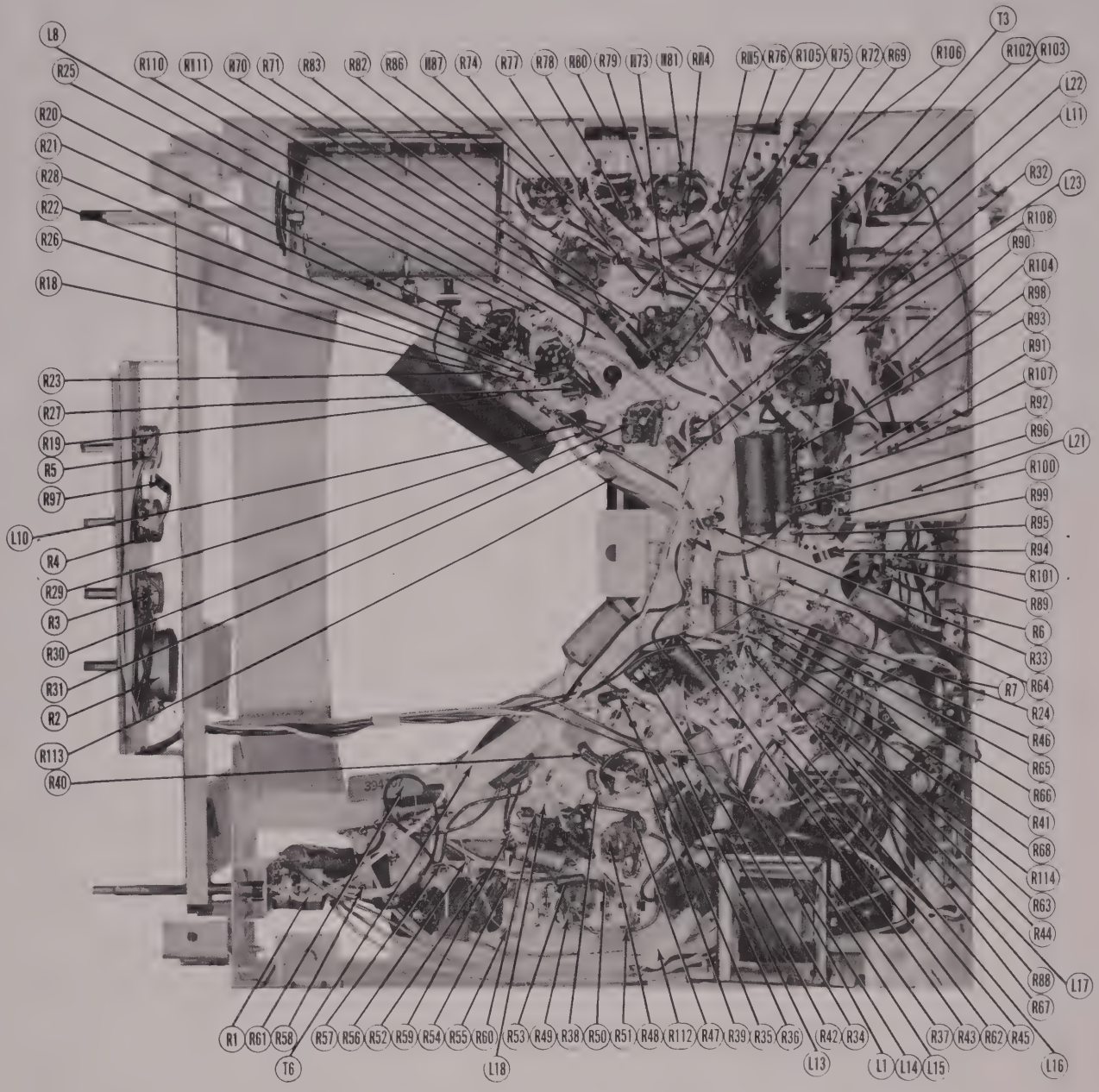
FUNCTION SWITCH IN AM OR FM POSITION
† TAKEN IN FM POSITION
■ TAKEN IN AM POSITION
†† MEASURED FROM OUTPUT OF M5

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

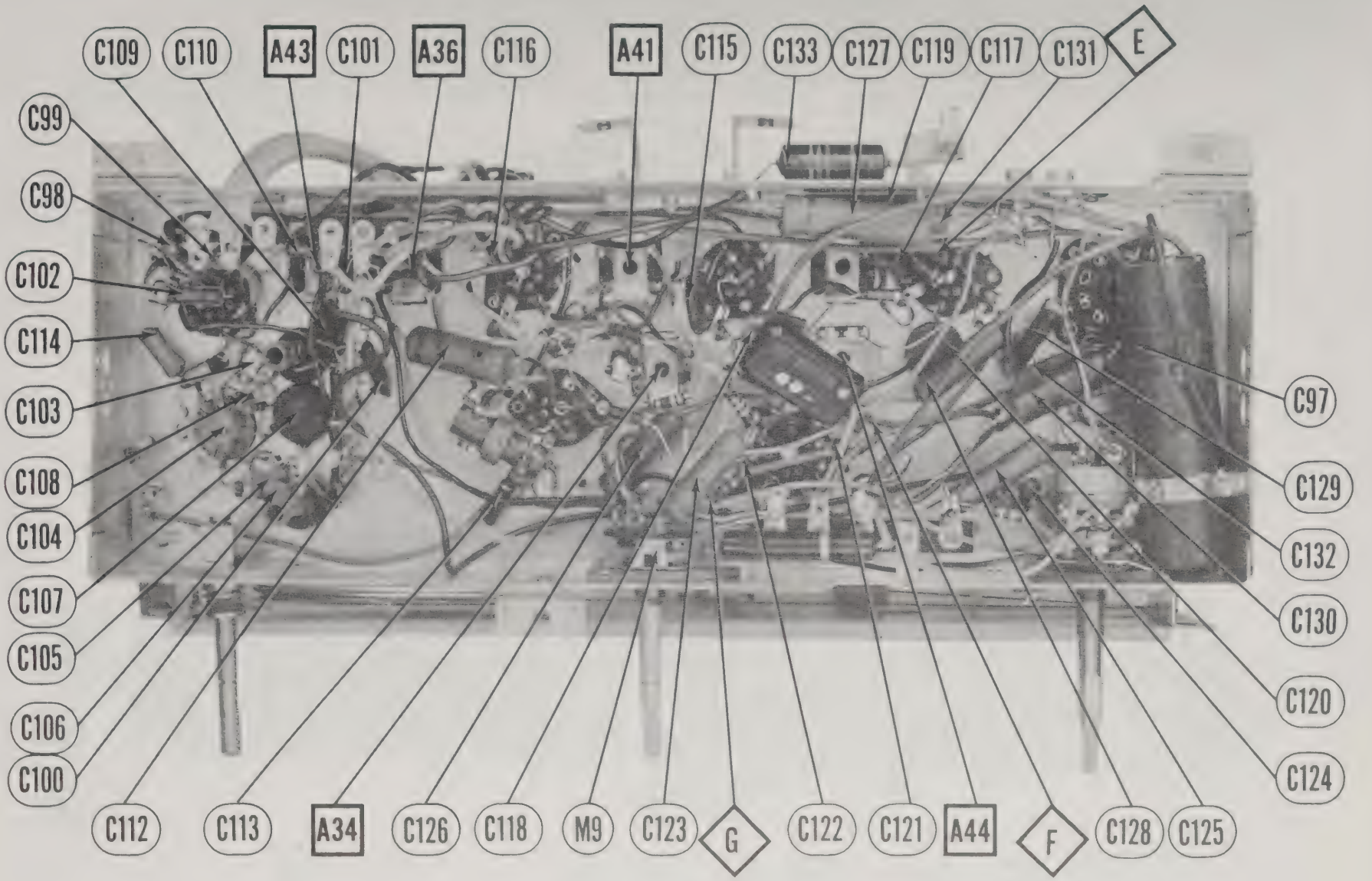
EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

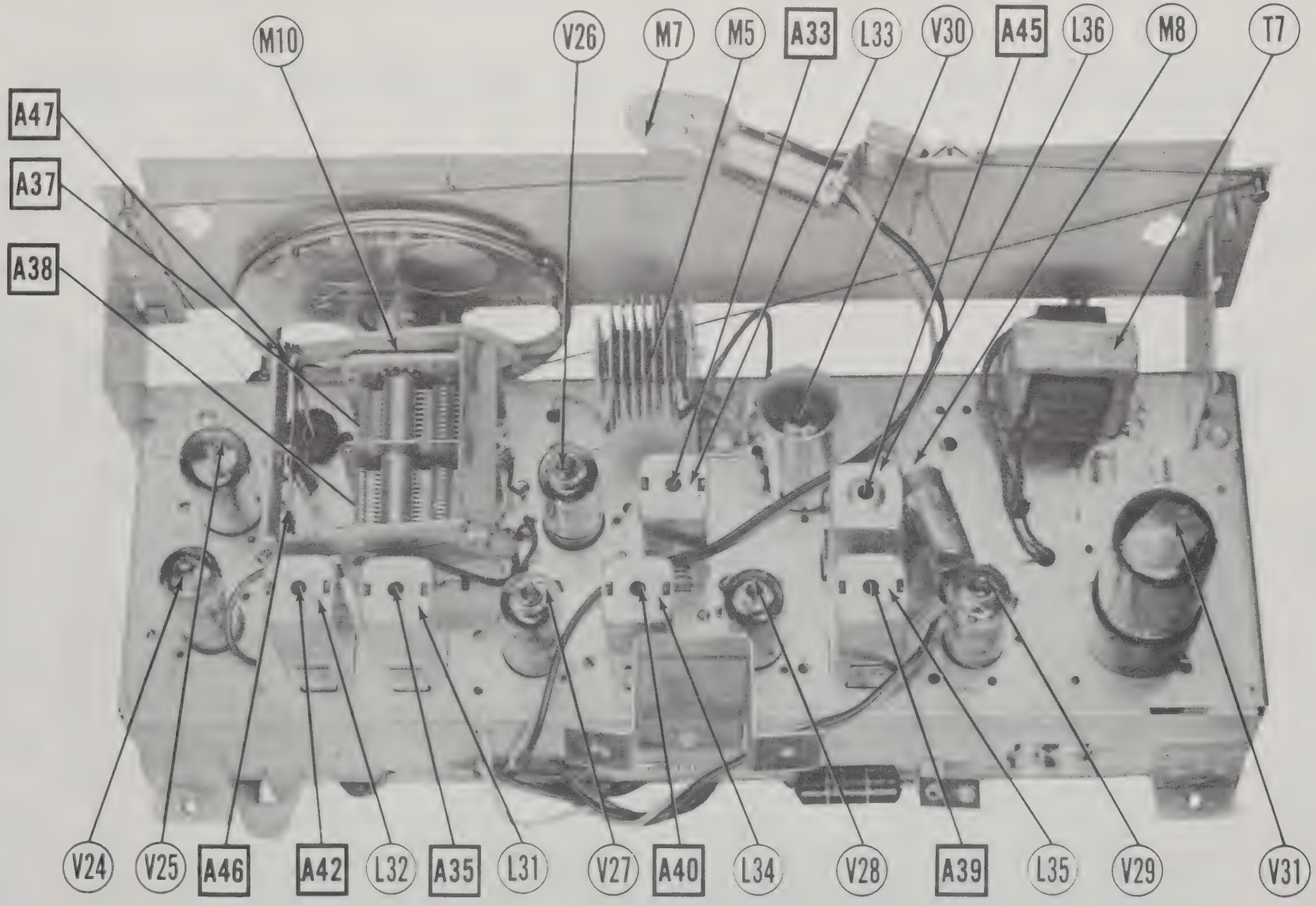
RADIO SCHEMATIC



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



RADIO CHASSIS-TOP VIEW

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		EMERSON PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	800055	6CB6	6CK	
B	RF Amplifier	800052	6BC5	7BD	
C	RF Amplifier	900535	6AG5	7BD	
V2	Converter	800536	6J6	7BF	
V3	1st. Video IF Amp.	800533	6AU6	7BK	
V4	2nd. Video IF Amp	800533	6AU6	7BK	
V5	3rd. Video IF Amp	800533	6AU6	7BK	
V6	4th. Video IF Amp	800533	6AU6	7BK	
V7	Video Detector-AGC Rectifier	800541	6AL5	6BT	
V8	Video Amplifier	800390	6AC7	8N	
V9	Sound IF Amp.	800533	6AU6	7BK	
V10	Limiter	800533	6AU6	7BK	
V11A	Discriminator	800541	6AL5	6BT	
V B	Discriminator-AF Amplifier	80035	6T8	9E	
V12	AF Amplifier		6AV6	7BT	
V13	Audio Output	800270	6V6GT	7AC	
V14	1st. Sync. Amp.-1st. Sync. Separater	800026	12AU7	9A	
V15A	2nd. Sync. Amp.-2nd. Sync. Separater	800380	6SN7GT	8BD	
B	2nd. Sync. Amp.-2nd. Sync. Sep.	800026	12AU7	9A	
V16	Vert. Mult.	800380	6SN7GT	8BD	
V17	Vert. Output	800016	6K6GT	7S	
V18	Horiz. AFC-Horiz Oscillator	800380	6SN7GT	8BD	
V19	Horiz. Output	800004	6BG6G	5BT	
V20	Damper	800037	6W4GT	4CG	
V21	HV Rectifier	800450	1B3GT	3C	
V22	LV Rectifier	800290	5U4G	5T	
V23A	Picture Tube	810011	16GP4B	12D	
B	Picture Tube	810011	16GP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450	925148	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2A	40	450	925148	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Output Decoupling
C3A	80	250	925149	AFH161612F		UPT825-415V5		TVL-3525	▲ Filter
B	40	150							■ Filter
C	50	50							▲ Vert. Output Cathode
C4A	20	450	925184	AFH333J		UP2U45		TVL-3778	■ Filter
B	10	450							▲ Filter
C	10	450							Decoupling
C5	5	450	925185	PRS450/4		BR445		TVA-1702	Decoupling
C6	3-9								Variable Trimmer
C7	.5-3				829-3				Variable Trimmer
C8	120			SU120	D6-121		GP2K-120	19C29	RF Amp. Decoupling
C9	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Fil.
C10	100			SU100N750	TCN-100		N750K-100	29C16	RF Coupling
C11	.5-3				829-3				Variable Trimmer
C12	20			SU20NP0	TCZ-20		NP0K-20		Osc. Grid Cap.
C13	10			SU10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C14	.5-3				829-3				Variable Trimmer
C15A	1000			BPD-2X001	DD-2-102		812.001	29C7	RF Bypass
B	1000								Conv. Fil.
C16	10	500		1469-00001	TCZ-10		NP0K-10	19C3	Fixed Trimmer
C17	1000			SU1000	D6-102		GP2L-001	19C1	Conv. Plate Dec.
C18	1500		928006	SU1500	D6-152		GP2L-0015	29C8	RF Bypass
C19	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	AGC Filter
C20	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	1st. V. IF Dec.
C21	75						N470K-75		Fixed Trimmer
C22	150	500	910215	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	IF Coupling
C23	200	500	910225	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	AGC Filter
C24	.25	200	923080	P488-25		GT2P25		2TM-P25	AGC Filter
C25	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C26	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	2nd. V. IF Dec.
C27	270	500	910214	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C28	.02	400		P488-02	DF-203	PTE4S2		4TM-S2	RF Bypass
C29	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	3rd. V. IF Plate Dec.
C30	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	3rd. V. IF Screen
C31	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	3rd. V. IF Cathode
C32	270	500	910214	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C33	50	500		1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Fixed Trimmer
C34	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	4th. V. IF Plate Dec.
C35	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	4th. V. IF Screen
C36	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	4th. V. IF Cathode
C37	25		928110	SU25	D6-250	5W5Q25	GP1K-25	19C27	IF Coupling
C38	5		928017	SU5	TCZ-4.7	5W5V5	GP1K-5	MS-55	V. Diode Filter
C39	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	V. Det.-AGC Fil.
C40	20			SU20NP0	TCZ-20		NP0K-20		Fixed Trimmer
C41	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C42	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Bias Filter
C43	.22	400	922018	P488-22		GT4P25		4TM-P22	Video Coupling
C44	.01	400	922015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sweep Coupling
C45	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Pic. Tube Grid
C46	5		928017	SU5	TCZ-4.7	5W5V5	GP1K-5	MS-S5	S. IF Coupling
C47	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	AVC Filter
C48	5000		928006	BPD-005	DD-502	1D5D5	811-005	29C1	1st. S. IF Dec.
C49	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	1st. S. IF Cathode
C50	68	500	910221	SU68	D6-680	5W5Q7	GP1K-68	19C10	Limiter Grid Filter
C51	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	Limiter Dec.
C52	1500		928006	SU1500	D6-152	1W5D15	GP2L-0015	29C8	Limiter Screen
C53	50	500	910222	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	RF Bypass
C54	.001	600	923109	P488-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C55	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C56	1500		928006	SII500	D6-152	1W5D15	GP2L-0015	29C8	Discr.-AF Amp. Fil.
C57	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C58	.001	600	923109	P668-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis
C59	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Audio Coupling
C60	.005	600	923110	P668-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C61	.22	400	922018	P488-22		GT4P25		4TM-P22	V. Amp. Dec.
C62	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C63	110	500		1468-0001	D6-121	5W5T1	GP2K-130	1FM-31	Sync. Coupling
C64	.01	400	922015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Sync. Coupling
C65	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling
C66	.01	400	923105	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Sync. Coupling
C67	.01	400	922015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sync. Coupling
C68A	2000			P668-002		PTE6D2	GP2M-002	6TM-D2	Integrator Net
B	5000	*	*PC-100	P668-005	*PC-100	PTE6D5	811-005	6TM-D5	Integrator Net
C	5000			P668-005		PTE6D5	811-005	6TM-D5	Integrator Net
C69	.005	600	923110	P668-005	D6-502	PTE6D5	811-005	6TM-D5	Vert. MV Feedback
C70	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Vert. MV Cathode
C71	.047	600	922037	P668-047		PTE6S5		6TM-S47	Vert. Discharge
C72	.22	400	922018	P488-22		GT4P25		4TM-P22	Vert. Sweep Coupling
C73	.02	200	923084	P488-02		PTE4S2		2TM-S2	Vert. Shaping
C74	82	500	910022	SI82	TCZ-82	5R5T1	GP1K-82	MS-31	Hor. Sync. Coupling
C75	82	500	910022	SI82	TCZ-82	5R5T1	GP1K-82	MS-31	Hor. Feedback
C76	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	AFC Filter
C77	5	200	923102	P288-5		GT2P5		2TM-P5	AFC Filter
C78	.02	200	923084	P488-02	DF-203	PTE4S2		4TM-S2	AFC Filter
C79	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Hor. AFC Plate
C80	180	500	910043	SI180	5R5T3	5R5T3	GP2K-180	MS-32	Hor. Osc. Grid
C81	.01	400	922041	P488-01		PTE4S1		4TM-S1	Fixed Trimmer
C82	1000	500	910211	1464-001		1W5D1		MS-31	Hor. Discharge
C83	470	500	910017	1468-0005	D6-471	5W5T5	GP2K-470	1FM-35	Hor. Sweep Coupling
C84	.047	600	922023	P668-047	DF-503	PTE6S5		6TM-S47	Hor. Output Screen
C85	25	200	923080	P488-25		GT2P25		2TM-P25	Hor. Output Cathode
C86	1500		928006	SII500	D6-152	1W5D15	GP2L-0015	29C8	Hor. Output Cathode
C87	18	6000	928052						Hor. Output Plate
C88	.018	1800	922051						Damper Filter
C89	.022	1000	922052	P1088-22		PTE16S2		MB-S22	Damper Filter
C90	500	2000	923016	HV20B	TV2-502				HV Filter
C91	1500		[illegible]	SII500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C92	1500		[illegible]	SII500	D6-152	1W5D15	GP2L-0015	29C8	Filament Bypass
C93	.05	400	[illegible]	P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C94	.05	400	[illegible]	P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C95	.018	1000	922051	P1088-22		PTE16S2		MB-S22	Rect. Plate Bypass
C96	.018	1000	922051	P1088-22		PTE16S2		MB-S22	Rect. Plate Bypass

* Items C68A, C68B, C68C, R76A, R76B, and R76C are combined into one unit

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	½	[illegible]		RTV-264	SBB-669-S	Contrast Control - Front
B	1Meg	½					Volume Control & SW - Rear
R2	1500Ω	4	390176		RTV-205	SVP-994	Focus Control - Wire Wound
R3A	100KΩ	½	390182	Q11-128	AG-49-S	AN-40	Brightness Control
B	Shaft		Not Req	Not Req	RS-2	AK-4	Attach to R3A per instructions
R4A	1Meg	½	390163	Q11-137	AG-61-S	AN-69	Vert. Hold Control
B	Shaft		Not Req	Not Req	RS-2	AK-4	Attach to R2A per instructions
R5A	50KΩ	½	390164	Q11-123	AG-44-S	AN-31	Horiz. Hold Control
B	Shaft		Not Req	Not Req	RS-2	AK-4	Attach to R5A per instructions
R6A	2Meg	½	390142	Q11-139	AM-83-S	AN-75	Vert. Size Control
B	Shaft		Not Req	Not Req	FKS-1/4	AK-1	Attach to R6A per instructions
R7	5000Ω	2	390143	W-5000	43-5000	VK-135	Vert. Linearity Control - Wire Wound

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	3900Ω	½		BTS-3900	Antenna Coil Shunt
R9	47KΩ 20%	½		BTS-47K	AGC Network
R10	2200Ω 20%	½		BTS-2200	RF Amp. Decoupling
R11	10KΩ	½			RF Coil Shunt
R12	4700Ω	½		BTS-4700	Mixer Grid
R13	220KΩ 20%	½			Mixer Grid
R14	10KΩ	½			Mixer Plate Decoupling
R15	10KΩ	½			Osc. Grid
R16	4700Ω	½		BTS-4700	Osc. Plate
R17	18KΩ	½			1st. Video IF Transformer Primary Shunt
R18	1000Ω 20%	½	350492	BTS-1000	AGC Network
R19	220Ω	½	340332	BTS-220	Decoupling
R20	5600Ω 20%	½	340672	BTS-5600	1st. Video IF Transformer Secondary Shunt
R21	68Ω	½	340212		1st. Video IF Amp. Cathode - See Note 5
R22	1000Ω 20%	½	350492	BTS-1000	1st. Video IF Amp. Decoupling
R23	1000Ω 20%	½	350492	BTS-1000	AGC Network
R24	1000Ω 20%	½	350492	BTS-1000	AGC Network
R25	10KΩ	½	340732		2nd. Video IF Transformer Shunt
R26	10KΩ	½	340732		2nd. Video IF Amp. Grid
R27	68Ω	½	340212		2nd. Video IF Amp. Cathode - See Note 5
R28	1000Ω 20%	½	350492	BTS-1000	2nd. Video IF Amp. Decoupling
R29	5600Ω	½	340672		3rd. Video IF Transformer Shunt
R30	220Ω	½	340332	BTS-220	3rd. Video IF Amp. Cathode
R31	1000Ω 20%	½	350492	BTS-1000	3rd. Video IF Amp. Screen
R32	2700Ω	½	340592	BTS-2700	3rd. Video IF Amp. Plate
R33	1000Ω 20%	½	350492	BTS-1000	3rd. Video IF Amp. Plate Decoupling
R34	220Ω 20%	½	340332	BTS-220	4th. Video IF Amp. Cathode
R35	1000Ω 20%	½	350492	BTS-1000	4th. Video IF Amp. Screen
R36	1000Ω 20%	½	350492	BTS-1000	4th. Video IF Amp. Plate Decoupling
R37	4700Ω	½	340652	BTS-4700	Video Det. Diode Load
R38	22KΩ	½	340812	BTS-22K	AGC Network
R39	100KΩ	½	340972	BTS-100K	AGC Network
R40	1Meg 20%	½	351212	BTS-1Meg	AGC Network
R41	220KΩ	½	341052	BTS-220K	Bias Network
R42	10Ω	½			Bias Network
R43	1Meg	½	351212	BTS-1Meg	Video Amp. Grid
R44	5600Ω 5%	2	397065	BTB-5600-5%	Video Amp. Plate
R45	22KΩ	½	340812	BTS-22K	Video Peaking Coil Shunt
R46	220KΩ	½	341052	BTS-220K	Picture Tube Cathode

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R47	1000Ω	1	350492	BTS-1000	Bias Network
R48	220Ω	½	340332	BTS-220	Sound IF Amp. Cathode
R49	1000Ω	½	350492	BTS-1000	Bias Network
R50	1Meg	½	351212	BTS-1Meg	AVC Network
R51	47KΩ	½	340892	BTS-47K	Limiter Grid
R52	27KΩ	1	370832	BTA-27K	Limiter Screen
R53	10KΩ	½	340732	BTS-10K	Voltage Divider
R54	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R55	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R56	68KΩ	½	340932	BTS-68K	De-emphasis
R57	10Meg	½	351452	BTS-10Meg	AF Amp. Grid
R58	220KΩ	½	341052	BTS-220K	AF Amp. Plate
R59	470KΩ	½	351132	BTS-470K	Output Grid
R60	330Ω	½	370372	BTA-330	Output Cathode
R61	25000Ω	5	394107	1 3/4A-2500	Output Decoupling - Wire Wound
R62	9100Ω	½			Sync. Amp. Grid - See Note 1
R63	47KΩ 20%	½	340892	BTS-47K	Sync. Amp. Plate - See Note 1
R64	10KΩ	½	340732	BTS-10K	Isolation
R65	2.2Meg 20%	½	351290	BTS-2.2Meg	Ist. Sync. Sep. Grid - See Note 2
R66	100KΩ	½	340972	BTS-100K	Ist. Sync. Sep. Grid - See Note 3
R67	22KΩ	½	340812	BTS-22K	Ist. Sync. Sep Plate
R68	10KΩ	½	340732	BTS-10K	Voltage Divider
R69	330KΩ	½	341092	BTS-330K	2nd. Sync Sep. Grid
R70	10KΩ	2	370732	BTB-10K	2nd. Sync. Sep. Plate
R71	1Meg	½	351212	BTS-1Meg	Sync. Amp. Grid
R72	1500Ω	½	450532	BTS-1500	Sync. Amp. Cathode
R73	2200Ω	½	340572	BTS-2200	Sync. Amp. Plate
R74	220Ω	½	340332	BTS-220	Sync. Amp. Plate
R75	22KΩ	½	340812	BTS-22K	Voltage Divider
R76A	22KΩ	½	*	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R77	2200Ω	½	340572	BTS-2200	Vert. MV Cathode
R78	150KΩ 5%	1	371012	BTA-150K-5%	Vert. MV Plate
R79	470KΩ	½	351132	BTS-470K	Vert. MV Grid - See Note 6
R80	470KΩ	½	351132	BTS-470K	Vert. MV Plate
R81	10KΩ	½	340732	BTS-10K	Vert. Peaking
R82	3.3Meg	½	341332	BTS-3.3Meg	Vert. Output Grid
R83	470Ω	½	340412	BTS-470	Vert. Output Cathode
R84	470Ω	1	370412	BTA-470	Decoupling
R85	470Ω	1	370412	BTA-470	Decoupling
R86	220KΩ	½	341052	BTS-220K	Damping
R87	100KΩ 20%	½	340972	BTS-100K	Vert. Retrace Blanking Network
R88	100KΩ	½	340972	BTS-100K	Vert. Retrace Blanking Network
R89	220KΩ	½	341052	BTS-220K	Voltage Divider
R90	150KΩ	½	341012	BTS-150K	Voltage Divider
R91	330KΩ	½	341092	BTS-330K	Horiz. AFC Grid
R92	820KΩ	½	341192	BTS-820K	Horiz. AFC Grid
R93	82KΩ 5%	1	360952	BTA-82K-5%	Horiz. AFC Cathode
R94	100KΩ	1	370972	BTA-100K	Horiz. AFC Plate
R95	3900Ω	½	340632	BTS-3900	Horiz. AFC Filter
R96	330KΩ 5%	1	361092	BTA-330K-5%	Bias Network
R97	120KΩ	1	370992	BTA-120K	Voltage Divider
R98	150KΩ 5%	1	361012	BTA-150K-5%	Horiz. Osc. Grid
R99	82KΩ	1	370952	BTA-82K	Horiz. Osc. Plate
R100	8200Ω	½	340712	BTS-8200	Horiz. Osc. Coil Shunt
R101	10KΩ	½	340732	BTS-10K	Decoupling
R102	2.2Meg	½	341292	BTS-2.2Meg	Bias Network
R103	68Ω	½	340212		Parasitic Suppressor - See Note 5
R104	1Meg 20%	½	351212	BTS-1Meg	Horiz. Output Grid
R105	100Ω	2	397027	BW-2-100	Horiz. Output Cathode - Wire Wound
R106	10KΩ	5	394104	1 3/4A-10K	Horiz. Output Screen - Wire Wound
R107	150KΩ	½	341012	BTS-150K	Horiz. Feedback Network
R108	750Ω	10	394108	1 3/4A-750	Horiz. Size Coil Shunt - Wire Wound
R109	1Meg	1	381212		HV Filter - See Note 4
R110	1000Ω	5	394109	1 3/4A-1000	Voltage Divider - Wire Wound
R111	4000Ω	5	394106	1 3/4A-4000	Voltage Divider - Wire Wound
R112	8000Ω	10	394060-6	1 3/4A-8000	Voltage Divider - Wire Wound
R113	1000Ω	15	394105	2D-15K	Filter - Wire Wound
R114	100KΩ	1	370972	BTA-100K	Isolation

* Items R76A, R76B, R76C, C68A, C68B, and C68C are combined into one unit

Note 1 Some models use 10KΩ Resistor in this application
Note 2 Some models use 330KΩ Resistor in this application
Note 3 Some models use 470KΩ Resistor in this application
Note 4 Some models use Series Resistors in this application to obtain desired value
Note 5 Some models use Parallel Resistors in this application to obtain desired value
Note 6 Some models use 680KΩ Resistor in this application to obtain desired value

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.
T1	117VAC	780VCT	5VAC	6.3VAC	730026 (or)			
	② 1.82A	.210ADC	② 3A	① 1.2A	730027			
				SEC. 4				
				6.3VAC				
				③ 3A				
				SEC. 5				
				6.3VAC				
				④ 4.8A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	NOTES
T2	520Ω	0Ω	738047 (or)		HV0-6		Horiz. Output Trans.
	Tap 85Ω		738048				
T3	440Ω	.4Ω	738044		A-3039		Vert. Output Trans.
T4A	3.5Ω		708043 (or)				Horiz. Deflection Coil
B	43Ω		708013				Vert. Deflection Coil
T5	1560Ω		708047				Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
T6	5.2KΩ	3.6Ω	330Ω	.7Ω	734051	A-3849	A-3019	R0-9 ①	① Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA VIKING PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	PM	3.6Ω	180077	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11¾"	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
L1	.200A	110Ω	6.8 Henries	737011	C-1410 ①	C-2991 ①	TR-4200 ①①	① Drill one new mounting hole

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA MEISSNER PART No.	REPLACEMENT DATA IRC PART No.	NOTES
L2	Ant. Coil	0Ω	0Ω				
L3	Fil. Choke	0Ω					
L4	RF, Mixer Grid and Osc. Coils	0Ω					
L5	Fil. Choke	0Ω					L2 Thru L7 Part of Tuner Part #470651
L6	1st. Video IF Primary	.3Ω					
L7	1st. Video IF Secondary	.3Ω					
L8	2nd. Video IF	.3Ω		720105			Includes Trap
L9	3rd Video IF	.2Ω		720088			
L10	Grid Coils	2.7Ω		705014			20 Microhenries
L11	4th. Video IF	.2Ω		720091			Includes Trap
L12	5th. Video IF	1.2Ω	1.2Ω	[illegible]			
L13	4.5MC Trap	1.9Ω		708032			
L14	RF Choke	2.7Ω		705014			20 Microhenries
L15	Peaking	16Ω		708116			1000 Microhenries (Blue Dot)
L16	Peaking	14Ω		708099	19-1923		330 Microhenries (White Dot)
L17	Peaking	20Ω		708115			660 Microhenries (Yellow Dot)
L18	1st. Sound IF	4Ω		708093			35 Microhenries (Red Dot)
L19	2nd. Sound IF	1.6Ω	1.6Ω	720081			
L20	Disc. Trans.	2.1Ω	2.3Ω	708018			
L21	Horiz. Osc. Coil	120Ω	38Ω	738035			
L22	Horiz. Lin.	36Ω		708003			
L23	Horiz. Size	6Ω		708058			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA EMERSON PART No. FUSE	REPLACEMENT DATA EMERSON PART No. HOLDER	REPLACEMENT DATA LITTELFUSE PART No. FUSE	REPLACEMENT DATA LITTELFUSE PART No. HOLDER	REMARKS
M1	3AG Pigtail	.250A	808170		318.250		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.	NOTES
M2	Bayonet	6-8	.15	Brown	807000	Type #47

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M3	RF Tuner	470651	
M4	Ion Trap	708061	
B3	Trimmer	900054	Horiz. Drive(25-300MMF)
A12	Trimmer	900064	Sound IF(3-35MMF)
	Safety Glass	520134	
	Mask	460179	
	Escutcheon	411043	Control Cover
	Knob	460177	Channel Selector
	Knob	460178	Fine Tuning
	Knob	460175	Contrast
	Knob	460176	Volume

EMERSON MODEL 666B
(Ch. 120135-B & Radio Ch. 120132-B)

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		EMERSON PART No.	STANDARD REPLACEMENT		
V24	FM RF Amplifier	800023	6BJ6	7CM	
V25	FM Converter	800047	12AT7	9A	
V26	AM Converter	800525	12BE6	7CH	
V27	1st. FM-AM IF Amp.	800023	6BJ6	7CM	
V28	2nd. FM IF Amp.	800023	6BJ6	7CM	
V29	Limiter	800054	6BH6	7CM	
V30	FM Discriminator -AM Detector-AVC -AF Amplifier	800029	19T8	9E	
V31	Power Output	800070	50L6	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C97A	50	150	925191	PRS150/80-40		UPE8415		TVA-3455	Filter Red
B	80	150							Filter Green
C89	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Ant. Coupling
C99	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Ant. Isolation
C100	10000		928027	BPD-01	DD-103	PTE4S1	821-01	36C1	FM RF Cec.
C101	1000		928053	BPD-001	DD-102	1W5D1	821-01	19C1	FM RF Cathode
C102	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	FM RF Fil.
C103	25						N080-331-25		Fixed Trimmer
C104	.5		915029						Osc. Coupling
C105	50		928102	SI50	D6-500	5W5Q5	GP1K-50	19C28	Osc. Grid Cap
C106	25						N080-331-25		Fixed Trimmer
C107	10000		928027	BPD-01	DD-103	PTE4S1	821-01	36C1	Osc. Decoupling
C108	1000		928053	BPD-001	DD-102	1W5D1	GP2L-001	19C1	FM Conv. Cathode
C109	10000		928027	BPD-01	DD-103	PTE4S1	821-01	36C1	FM Conv. Dec.
C110	100		928013	SI100	D6-101	5W5T1	GP1K-100	19C1	Line Ant. Coupling
C111	2.2				TCZ-2.2				Ant. Coupling
C112	.05	200	920060	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C113	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	AM Conv. Fil.
C114	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	FM RF Fil.
C115A	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	1st. IF Dec.
B	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	2nd. IF Cathode
C116	10000		928027	BPD-01	DD-103	PTE4S1	821-01	36C1	1st. IF Cathode
C117	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Dec.
C118	5100		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C119	25		928110	SI25	D6-250	5W5Q25	GP1K-25	19C27	IF Coupling
C120	10000		928027	BPD-01	DD-103	PTE4S1	821-01	36C1	Limiter Dec.
C121	100		928013	SI100	D6-101	5W5T1	GP1K-100	19C1	RF Bypass
C122	300		928059	SI300	D6-301	5W5T3	GP2K-300	19C14	RF Bypass
C123	.005	600	920180	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C145	100		928013	SI100	D6-101	5W5T1	GP1K-100	19C11	Tone Comp.
C125	.01	400	920090	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Tone Comp.
C126	.002	600	920545	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Tone Comp.
C127	.05	400	920030	P488-05	DF-503	PTE4S5		4TM-S5	Phono Isolation
C128	.01	400	920090	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C129	212		928104	SI220	D6-221	5W5T2	GP2K-220	19C13	Output Grid
C130	.02	400	920020	P488-02	DF-203	PTE4S2		4TM-S2	Output Plate
C131	.05	400	920030	P488-05	DF-503	PTE4S5		4TM-S5	Speaker Isolation
C132	.05	400	920030	P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C133	.047	400	922101	P488-047	DF-503	PTE4S5		4TM-S47	Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R115A	400KΩ	½	390175		RTV-265	SBBT-670-S	Tone Control - Front
B	1Meg	½					Volume Control & SW - Tapped @ 250KΩ Rear

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
R116	68Ω	½	340212		FM RF Amp. Cathode
R117	220Ω	½	340332	BTS-220	FM RF Amp. Decoupling
R118	2200Ω	½	340572	BTS-2200	FM Conv. Cathode
R119	1000Ω	½	340492	BTS-1000	Decoupling
R120	10KΩ	½	340732		FM Osc. Grid
R121	220Ω	½	340332	BTS-220	FM Osc. Plate
R122	22KΩ	½		BTS-22K	AM Osc. Grid
R123	2.2Meg	½	351290	BTS-2.2Meg	AVC Network
R124	68Ω	½	340212		Parasitic Suppressor
R125	82Ω	½	340232	BTS-82	1st. IF Amp. Cathode
R126	220Ω	½	340332	BTS-220	1st. IF Amp. Decoupling
R127	82Ω	½	340232	BTS-82	2nd. FM IF Amp. Cathode
R128	220Ω	½	340332	BTS-220	2nd. FM IF Amp. Decoupling
R129	100KΩ	½	340970	BTS-100K	Limiter Grid
R130	15KΩ	½	340770	BTS-15K	Limiter Decoupling
R131	100KΩ	½	340970	BTS-100K	Disc. Diode Load
R132	100KΩ	½	340970	BTS-100K	Disc. Diode Load
R133	68KΩ	½	340930	BTS-68K	De-emphasis
R134	47KΩ	½	340890	BTS-47K	Diode Filter
R135	1Meg	½	341210	BTS-1Meg	Diode Load
R136	4.7Meg	½	351370	BTS-4.7Meg	AF Amp. Grid
R137	22KΩ	½	340810	BTS-22K	Tone Compensation
R138	22KΩ	½	240810	BTS-22K	Tone Compensation
R139	470KΩ	½	351130	BTS-470K	AF Amp. Plate
R140	470KΩ	½	351130	BTS-470K	Output Grid
R141	150Ω	½	340292	BTS-150	Output Cathode
R142	1000Ω	3	394042		Filter - Wire Wound
R143	22Ω	2	394027	BW-2-22	Surge Limiter - Wire Wound

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	2.2KΩ	3.6Ω	180Ω	.7Ω	734064	A-3330 ①	A-3025 ①	R0-3 ①	① Drill one new mounting hole

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	IRC PART No.	
L24	FM Ant. Coil	0Ω		713026			
L25	FM RF Coil	0Ω	0Ω	713027			
L26	Fil. Choke	.2Ω		705002			
L27	Fil. Choke	.2Ω		705002			
L28	FM Osc. Coil	0Ω	0Ω	716059			
L29	Loop Ant.	1.6Ω		700054			
L30	AM Osc. Coil	5.6Ω		716058			Tap At .5Ω
L31	1st. AM IF	16Ω	16Ω	720075			
L32	1st. FM IF	.6Ω	.6Ω	720126			
L33	2nd. AM IF	16Ω	16Ω	720076			
L34	2nd. FM IF	1.2Ω	1.2Ω	720067			
L35	3rd. FM IF	.7Ω		720077			
L36	Disc. Trans.	1.7Ω	1.8Ω	708062			

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	EMERSON PART No.	SYLVANIA PART No.	SELETRON PART No.	
M5	.070A	817102 or 817101	NC-5	5M1	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA						REMARKS
	EMERSON PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M6		LT-5-AG	D-AG	W66B	A66U	73	0-2 or S-2	

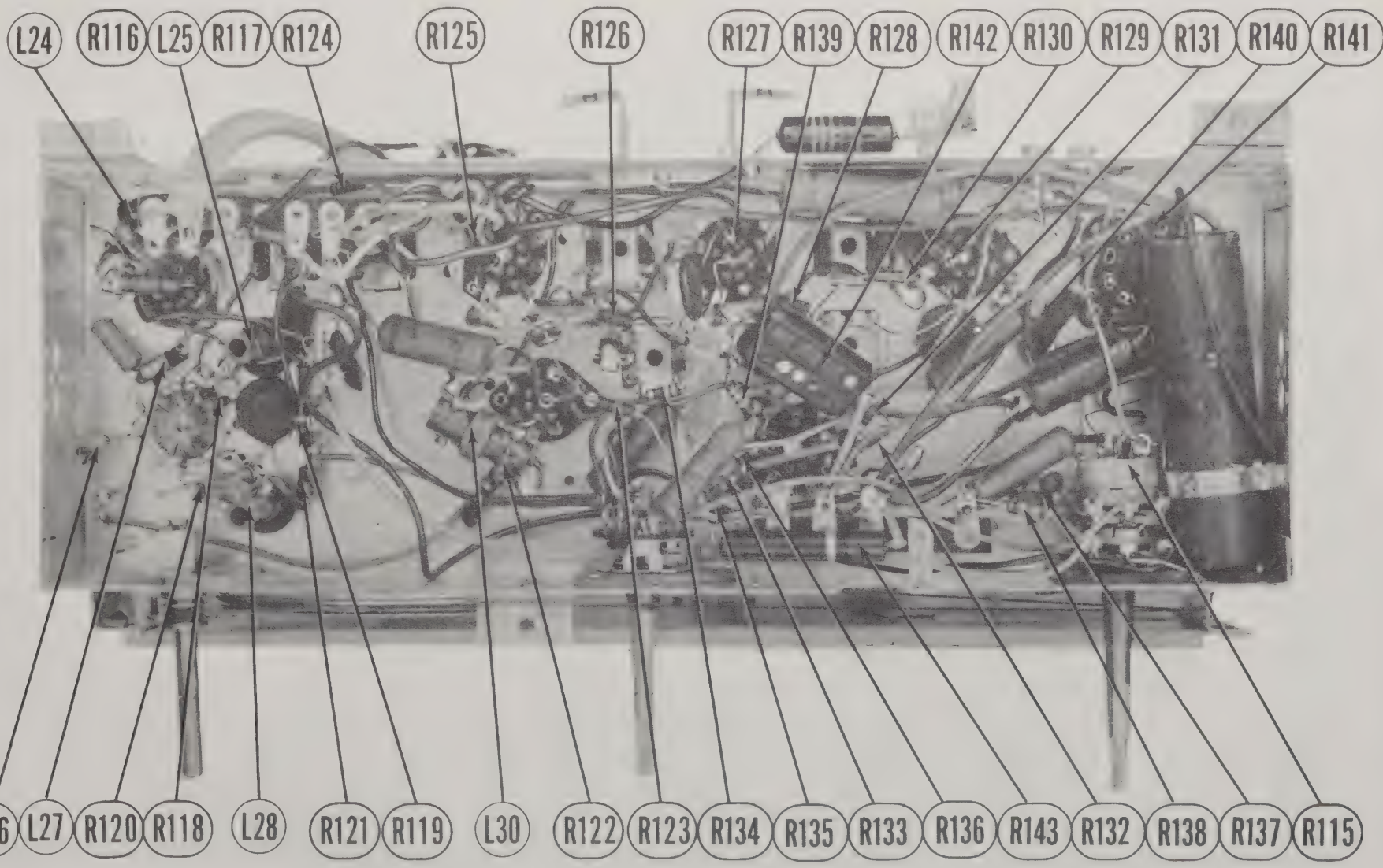
ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED:

DIAL LIGHTS

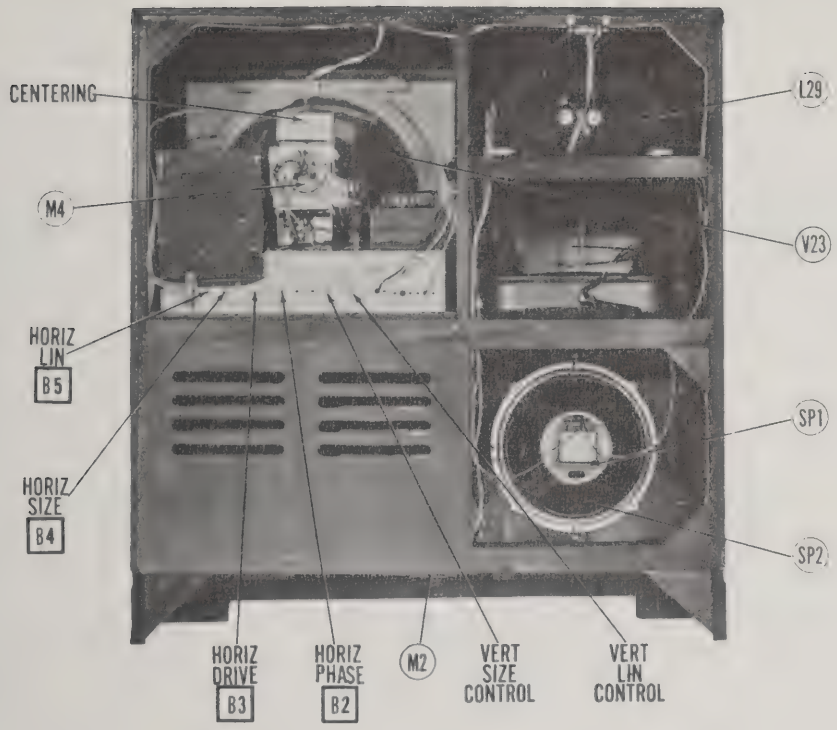
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					EMERSON PART No.		
M7	Bayonet	110V		Clear	807003		10 Watt
M8	Bayonet	110V		Clear	807003		10Watt

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M9	Switch	510078	Function Phono-AM-FM
M10	Tuning Capacitor	800081	Part Number Includes 2 Gang Variable Condenser and FM Tuning Assembly. (15-389MMF), (34-187MMF)
	Dial Glass	520139	
	Escutcheon	520120	
	Knob	450068S	Tuning
	Knob	450099S	Volume
	Knob	450098	Tone
	Knob	450088S	Function Switch



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENTS

Connect a short across C81.
Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to maximum counter-clockwise.
Starting with the slug all the way out, adjust the horizontal frequency slug, (B1) inward until the picture synchronizes horizontally.
Remove the short from C81 and connect the vertical input lead of an oscilloscope to terminal C of L21.
Adjust the horizontal phasing slug, (B2) until the broad and narrow peaks of the waveform on the oscilloscope are of equal height as shown in figure 8. If necessary during adjustment of B2,, adjust B1 to keep the picture synchronized.
Momentarily interrupt the signal by switching to another channel and back again. The picture should be out of sync and show 4 or 5 sloping bars. If more than 5, or less than 4 bars are present adjust B1 until 4 or 5 bars are present.
Turn the hold control slowly clockwise. The picture should synchronize after approximately 1/4 turn and should remain in sync over the entire range of the hold control.

HORIZONTAL DRIVE, WIDTH, AND LINEARITY ADJUSTMENTS

Adjust the horizontal drive trimmer, (B3) clockwise as far as possible without crowding the right half of the picture.
Adjust the width slug (B4) until the picture fills the mask horizontally.
Adjust the horizontal linearity slug, (B5) until the picture is symmetrical from left to right. Readjustment of B3 may be necessary to obtain best linearity.

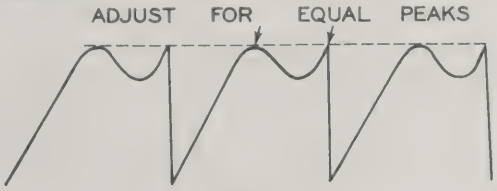


FIG. 8

DISASSEMBLY INSTRUCTIONS

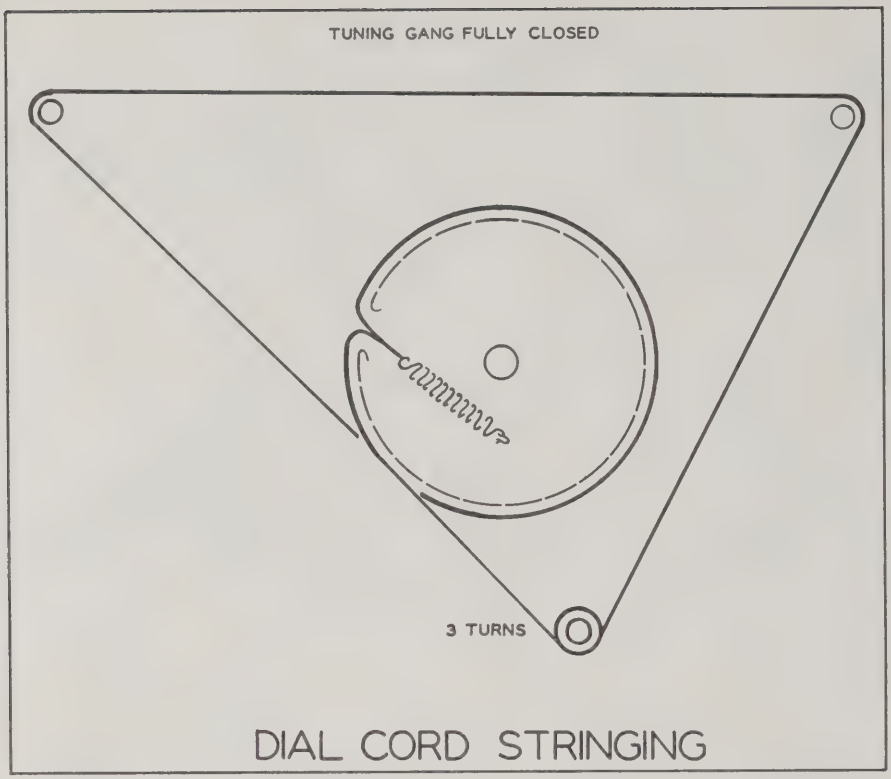
TV CHASSIS REMOVAL

1. Remove four push-on type control knobs.
2. Remove fifteen wood screws holding rear cover in cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect radio audio input plug.
5. Remove cabinet light type #47.
6. Remove six 3/8" hex head screws from chassis. Remove chassis.

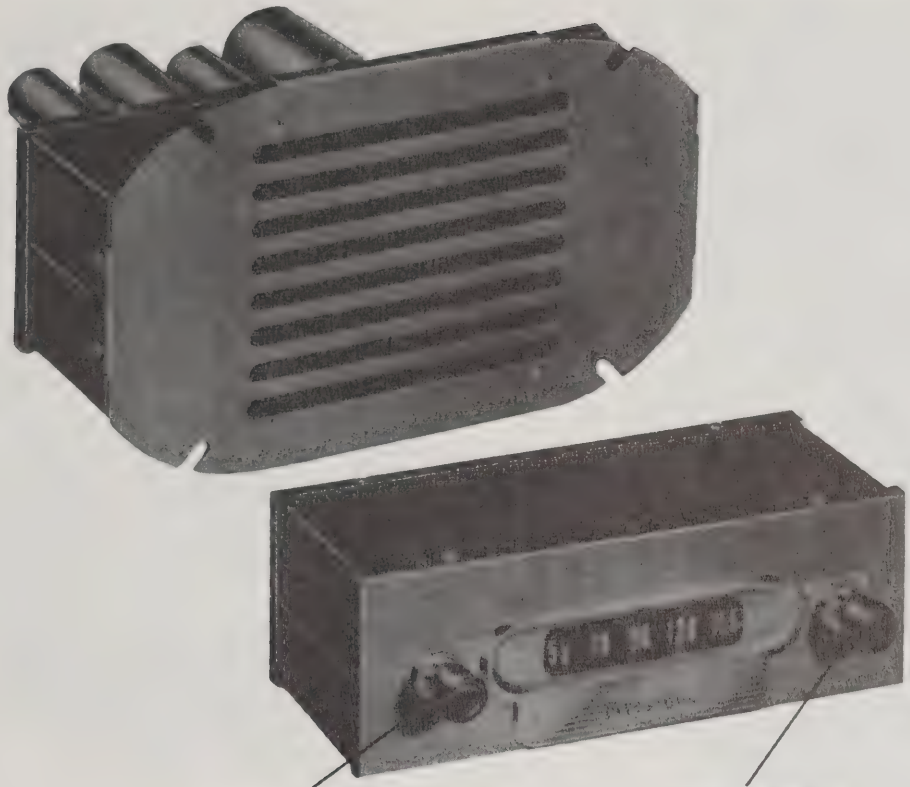
NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

RADIO CHASSIS REMOVAL

1. Remove cabinet pilot light type 117 V-10 watt.
2. Remove four push-on type control knobs.
3. Disconnect phono audio input plug.
4. Disconnect phono ground lead.
5. Disconnect speaker.
6. Disconnect phono power plug.
7. Remove three 5/16" hex head bolts from chassis. Remove chassis.
8. Remove four 5/16" hex nuts from speaker. Remove speaker.



DIAL CORD STRINGING



FIRESTONE
MODEL 4-B-56

FIRESTONE
MODEL 4-B-56

TRADE NAME	Firestone, Model 4-B-56
MANUF.	Firestone Tire & Rubber Co., Akron, Ohio
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 DET-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.1 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set right hand edge of pointer carriage 2 31/32" from edge of chassis at the low frequency end of dial.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2) Low side to chassis	455KC (400~ Mod)	Tuning gang fully open	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	100MMF	High side to pin 1 (Grid) of 6BA6 (V1) Low side to chassis	1600KC	"	"	A5	"
3.	100MMF	High side to antenna lead. Low side to chassis.	1400KC	Tune for max. output.	"	A6	"
4.	100MMF	"	"	"	"	A7	"
5.	100MMF	"	600KC	"	"	A8	"
6.	100MMF	"	600KC	"	"	A9, A10	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	350	CE-86	AF64H4A		UP2235C		TVL-3636	■ Filter
B	20	350							▲ Filter
C2	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C4	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	Decoupling
C5	100		CC200	SI100	D6-101	5W5T1	GP1K-101	19C11	Osc. Grid Cap.
C6	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C7	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	Decoupling *
C8	200		CC201	SI200	D6-201	5W5T2	GP2K-201	19C30	Diode RF Filter
C9	.006	400		P488-006	D6-562	PTE6D6	GP2-333-602	6TM-D6	Audio Coupling
C10	200		CC201	SI200	D6-201	5W5T2	GP2K-201	19C30	AF Amp. Plate
C11	.01	600	C206	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Audio Coupling
C12	.5	100	C209	P185-5				68P20	Hash Filter
C13	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Output Plate
C14	.008	1600	C205	P1688-0075		PTE16D8		MB-D8	Buffer
C15	.5	100	C209	P185-5				68P20	Hash Filter

* Not used in all models

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	750KΩ	½	RV-100	Q13-137	AG-79-Z	B-70-S	Volume control and switch
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R1A per instructions
C	Switch		Not Req	76-1	SWB	Not Req	Attach to R1A per instructions

RESISTORS

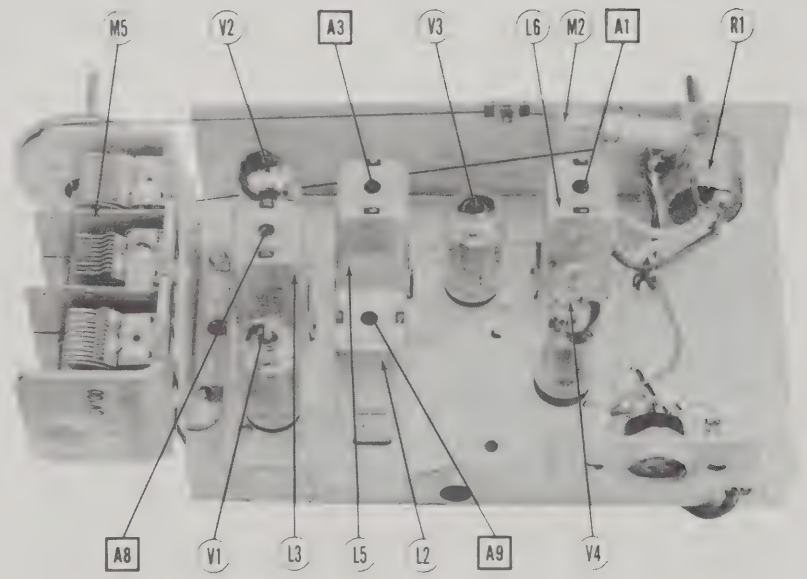
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	1Meg	½	R309	BTS-1Meg	AVC Network
R3	20KΩ	½	R306	BTS-22K	Osc. Grid
R4	1500Ω	½	R314	BTS-1500	IF Amp. Cathode
R5	20KΩ	2	R313	BT-2-22K	Screen Dropping
R6	2Meg	½	R310	BTS-2Meg	AVC Network
R7	10Meg	½	R311	BTS-10Meg	AF Amp. Grid
R8	240KΩ	½	R307	BTS-220K	AF Amp. Plate - See Note 1
R9	500KΩ	½	R308	BTS-470K	Output Grid
R10	330Ω	½	R303	BW-½-330	Output Cathode
R11	1000Ω	1	R312	BTA-1000	Filter
R12	100Ω	½	R301	BW-½-100	Hash Suppression
R13	100Ω	½	R301	BW-½-100	Hash Suppression
R14	300Ω	½	R303	BW-½-330	RF Amp. Cathode - See Note 2

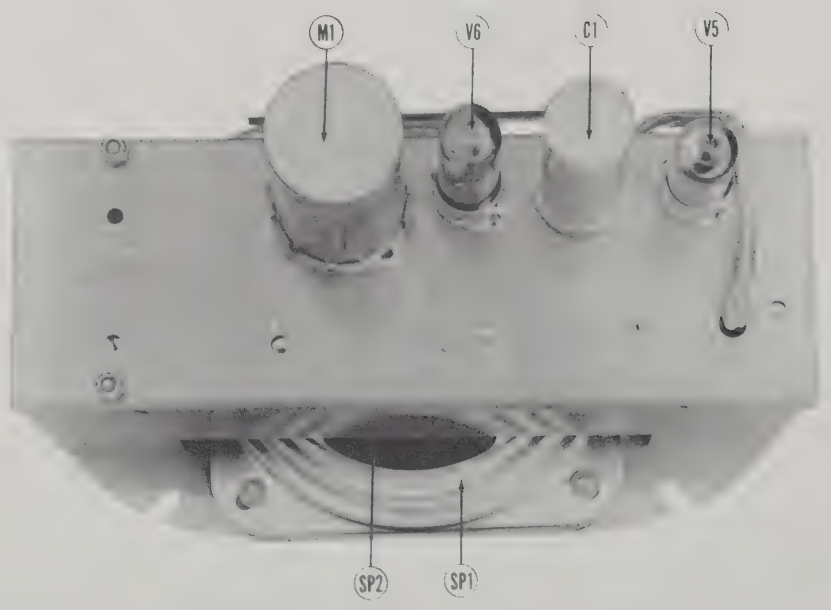
Note 1 Some models use a 250KΩ Resistor in this application.
Note 2 Not used in all models.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC ④ 3A	425VCT .038ADC			TV-100		P-2970	

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4800Ω	3.4Ω	400Ω	.7Ω	Part of SP1	A-3877	A-2930	R0-8	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FIRESTONE PART No.	VIKING PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	PM-705	525J4	52A21 ①	① Remount output transformer.
	PM	3.4Ω				
SP2	CONE DIA.	V. C. DIA.				
	5"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	
L1	Ant. Loading	2Ω		L200		Includes Capacitor used as coil form
L2	Ant. Coil	14.5Ω	5Ω	57FM-3		
L3	RF Coil	90Ω	7.5Ω	57FM-4		
L4	Osc. Coil	10Ω			14-1073	Tap at 1.2Ω
L5	1st. IF	21Ω	21Ω	1655-16	16-6758	
L6	2nd. IF	21Ω	21Ω	1655-16	16-6758	
L7	Fil. Choke	0Ω		L203		
L8	Fil. Choke	.2Ω		L202		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6VDC	115∿	V-83	A-100	5301	5301	

DIAL LIGHTS

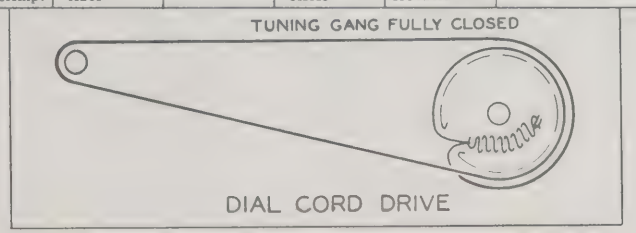
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					FIRESTONE PART No.		
M2	Bayonet	6-8	.15	Brown	T47		Type #47

MISCELLANEOUS

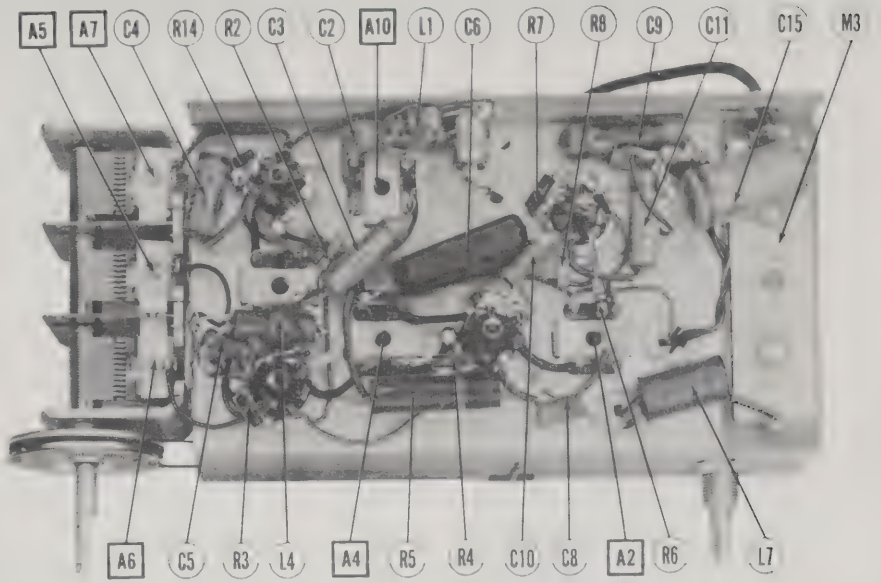
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M3	Spark Plate		
M4	3 Gang Var. Cap.	CV-100A	(20-402MMF, 16-403MMF, 33-217MMF)

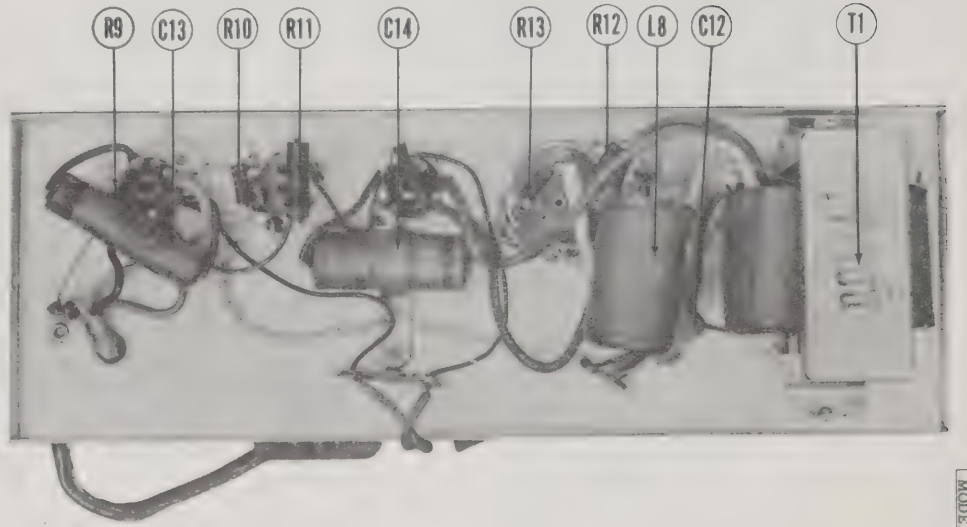
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			FIRESTONE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M4	3AG	15Amp.	A201		311015	155020A	



CHASSIS—BOTTOM VIEW

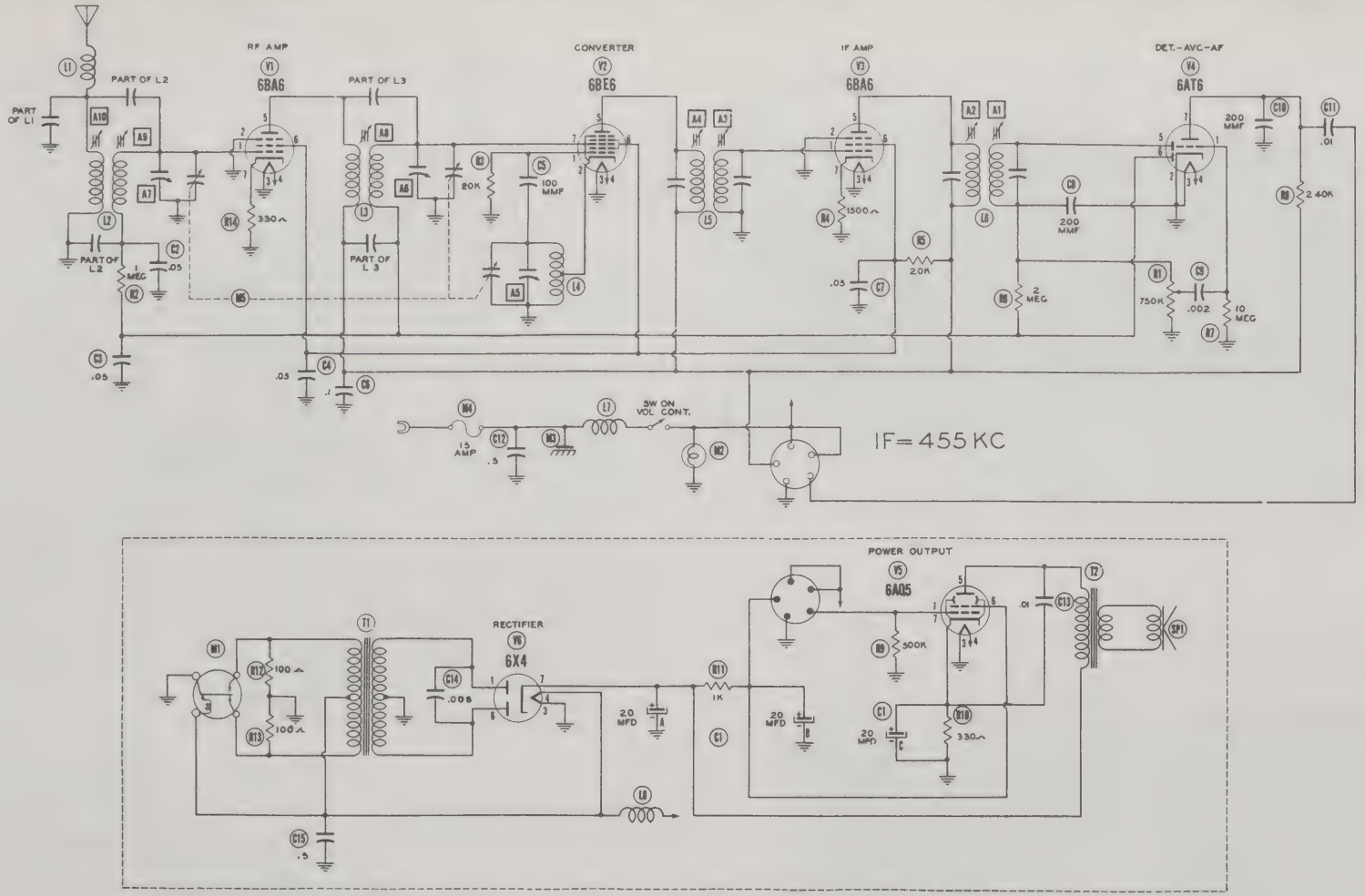




SET 133 FOLDER 6

FIRESTONE MODEL 4-B-56

FIRESTONE MODEL 4-B-56



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	- 2VDC	0V	0V	6.3VDC	220VDC	70VDC	1.3VDC
V 2	6BE6	1-7.3VDC	0V	0V	6.3VDC	220VDC	70VDC	- .6VDC
V 3	6BA6	0V	0V	0V	6.3VDC	220VDC	70VDC	3.3VDC
V 4	6AT6	- .8VDC	0V	0V	6.3VDC	- .6VDC	- .6VDC	75VDC
V 5	6AQ5	0V	9.8VDC	0V	6.3VDC	230VDC	220VDC	0V
V 6	6X4	280VAC	0V	0V	6.3VDC	0V	280VAC	250VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

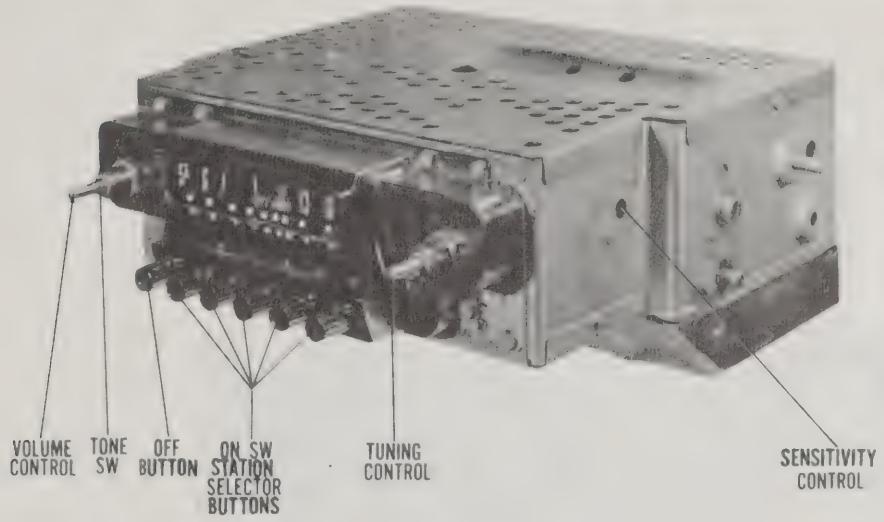
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	3.7Meg	0Ω	0Ω	.1Ω	†1000Ω	†21KΩ	300Ω
V 2	6BE6	20KΩ	1Ω	0Ω	.1Ω	†1000Ω	†21KΩ	2.7Meg
V 3	6BA6	21Ω	0Ω	0Ω	.1Ω	†1000Ω	†21KΩ	1.5KΩ
V 4	6AT6	10Meg	0Ω	0Ω	.1Ω	750KΩ	2.7Meg	†240KΩ
V 5	6AQ5	500KΩ	330Ω	0Ω	.1Ω	†400Ω	†1000Ω	500KΩ
V 6	6X4	250Ω	Inf.	0Ω	.1Ω	Inf.	250Ω	500KΩ

† MEASURED FROM PIN 7 OF V6

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W Sams & Co., Inc. 1951

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



FORD
MODEL 1CF743 (1A-18805-B)

TRADE NAME	Ford, Model 1CF743 (1A-18805-B)
SUPPLIER	Ford Motor Car Co., Detroit, Michigan
TYPE SET	Battery Operated Custom-Built Automotive Superheterodyne Receiver
TUBES (EIGHT)	Types 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT DET-AVC-AF, 6J5GT Phase Inverter, (2) 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 7.6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cores fully in, (low freq. end), and adjust the pointer adjust eccentric until the pointer is centered on the large 5 of the 55 calibration.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 6SA7GT (V2). Low side to chassis.	265KC (400~ Mod)	Tuning cores fully out.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	fig. 1	High side thru dummy to antenna receptacle. Low side to chassis.	1610KC	"	"	A5	"
3.	"	"	600KC	600KC	"	A6	Adjust for maximum output. Repeat steps 2 & 3 until no further improvement can be made.
4.	"	"	1400KC	Tune for max. output.	"	A7, A8	Adjust for maximum output.
	The following should be performed only after a coil or tuning core has been replaced, or tampered with.						
5.	"	"	1625KC	Tuning cores fully out.	"	A5, A7, A8	Turn tuning cores completely out of coils. Adjust for maximum output.
6.	"	"	1400KC	1400KC	"	A9, A10, A11	Screw cores into coils until slug extends 11/16ins. out of coil form Adjust cores in order given for maximum output. Repeat steps 2, 3, & 4.
7.	Turn tuning cores fully out and check the high frequency tuning range. If the range is more or less than 1610KC, bend the lug stop near the volume control to limit the range to 1610KC. The sensitivity control, (R2), has been properly set at the factory and should not require adjustment unless it has been tampered with. If adjustment is required, adjust R2 to obtain 3.5 volts between pin 5 of V3 and chassis. After set is installed fully extend the antenna and tune in a weak station near 1400KC. Adjust A8 for maximum volume.						

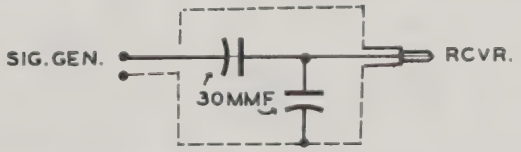


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SYLVANIA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	622-0001H	6SK7GT	8N	
V2	Converter	622-0002H	6SA7GT	8AD	
V3	IF Amplifier	622-0001H	6SK7GT	8N	
V4	DET-AVC-AF	622-0003H	6SQ7GT	8Q	
V5	Phase Inverter	622-0010H	6J5GT	6Q	
V6	Power Output	622-0004H	6V6GT	7AC	
V7	Power Output	622-0004H	6V6GT	7AC	
V8	Rectifier	633-0001H	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	400	161-3005	AFH44I4A		UP2245C		TVL-3678	■ Filter
B	20	400							▲ Filter
C	20	25							Output Cathode
C2	10000		168-0002D	BPD-01	DD-103	PTE4S1	821-01	36C1	RF Coupling
C3	150	500	164-0150	1469-00015		5R5T15		MS-315	Fixed Trimmer
C4	.022	200	160-02122	P488-022	DF-203	PTE4S2		4TM-S22	AVC Filter
C5	.1	400	160-0401	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C6	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C7	250								Fixed Trimmer
C8	10000		168-0002D	BPD-01	DD-103	PTE4S1	821-01	36C1	AVC Filter
C9	.1	200	160-0201	P288-1	DF-104	PTE4P1		2TM-P1	IF Amp. Cathode
C10	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Tone Comp.
C11	250	500		1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Tone Comp.
C12	.0022	400	160-04222	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	Tone Comp.
C13	.0015	400	160-04215	P688-0015	D6-152	1W5D15	GP2L-0015	6TM-D15	Tone Comp.
C14	10000		160-02256	BPD-01	DD-103	PTE4S1	821-01	36C1	Audio Coupling
C15	220	500	163-020	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate
C16	.022	600	160-06122	P688-022	DF-203	PTE6S2		6TM-S22	Audio Coupling
C17	.022	600	160-06122	P688-022	DF-203	PTE6S2		6TM-S22	Audio Coupling
C18	.0082	1600	160-16282			PTE16D8		MB-D8	Buffer
C19	.5	100	169-0001	P185-5				68P20	Hash Filter
C20	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Filament Bypass *

* Not used in all models.

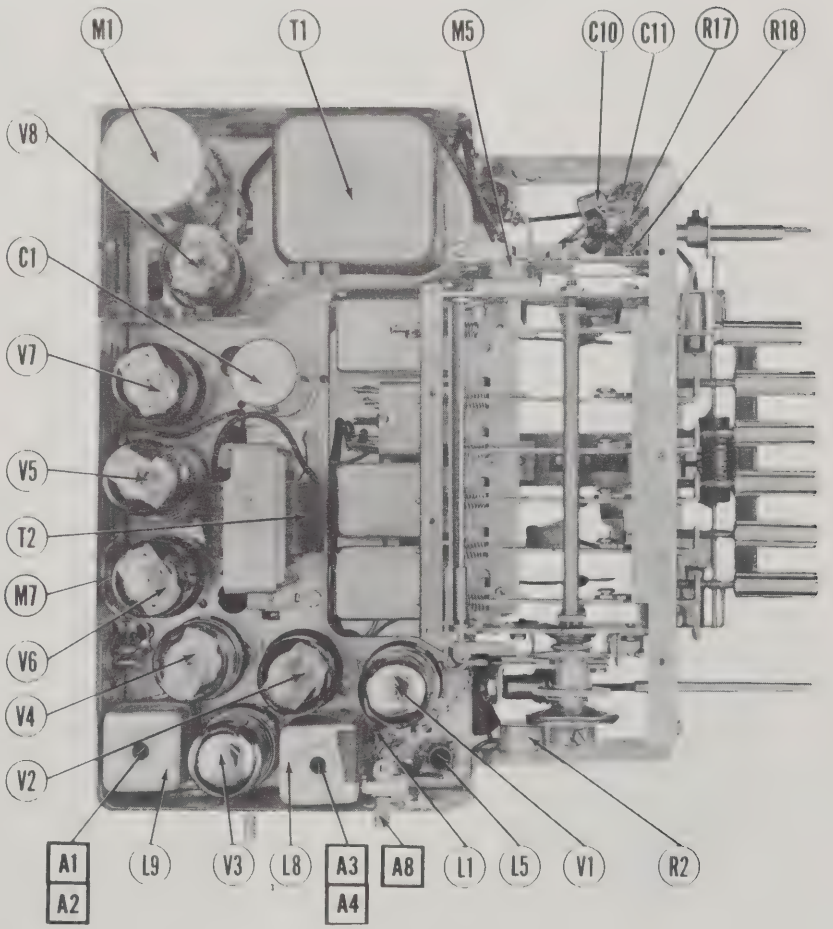
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1Meg	½	152-0008				Volume Control - Tapped @ 500KΩ - Rear
B	Switch						4 Position Tone Switch - Front
R2	2000Ω	1	159-0004				Sensitivity Control - Wire Wound - 100Ω Minimum

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	
R3	330KΩ	½	181-0334		RF Amp. Grid
R4	10KΩ	1	182-0103		RF Amp. Plate
R5	330KΩ	½	181-0334		Conv. Grid
R6	22KΩ	½	181-0223		Osc. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	
R7	5.6Meg	½	181-0565	BTS-5.6Meg	AVC Network
R8	820Ω	½	181-0821	BTS-820	Osc. Coil Shunt
R9	330KΩ	½	181-0334		IF Amp. Grid - See Note
R10	22KΩ	½	181-0223	BTS-22K	Voltage Divider
R11	12KΩ	2	183-0123		Screen Loading
R12	470KΩ	½	181-0474	BTS-470K	Diode Load - See Note
R13	220KΩ	½	181-0224	BTS-220K	AVC Network
R14	1Meg	½	181-0105	BTS-1Meg	AVC Network
R15	220KΩ	½	181-0224	BTS-220K	AVC Network - See Note
R16	33KΩ	½	181-0333	BTS-33K	AVC Network - See Note
R17	100KΩ	½	181-0104	BTS-100K	Tone Compensation
R18	100KΩ	½	181-0104	BTS-100K	Tone Compensation
R19	15Meg	½	181-0156	BTS-15Meg	AF Amp. Grid
R20	330KΩ	½	181-0334	BTS-330K	AF Amp. Plate
R21	47Ω	½	181-0470		AF Amp. Cathode
R22	56KΩ	½	181-0563	BTS-56K	Phase Inv. Grid
R23	2200Ω	½	181-0222	BTS-2200	Phase Inv. Cathode
R24	39KΩ	½	181-0393	BTS-39K	Phase Inv. Plate
R25	330KΩ	½	181-0334	BTS-330K	Output Grid
R26	330KΩ	½	181-0334	BTS-330K	Output Grid
R27	330Ω	1	182-0331	BTA-330	Output Cathode
R28	1500Ω	½	181-0152	BTS-1500	Feedback Network
R29	1800Ω	2	182-0182	BTB-1800	Filter
R30	82Ω	½	181-0820		Hash Suppressor
R31	82Ω	½	181-0820		Hash Suppressor

Note - Not used in all models.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3 VDC @ 3.8A	530VCT .060 ADC			141-0010			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	8KΩCT	3.2Ω	430CT	.23Ω	143-0012	A-3852			

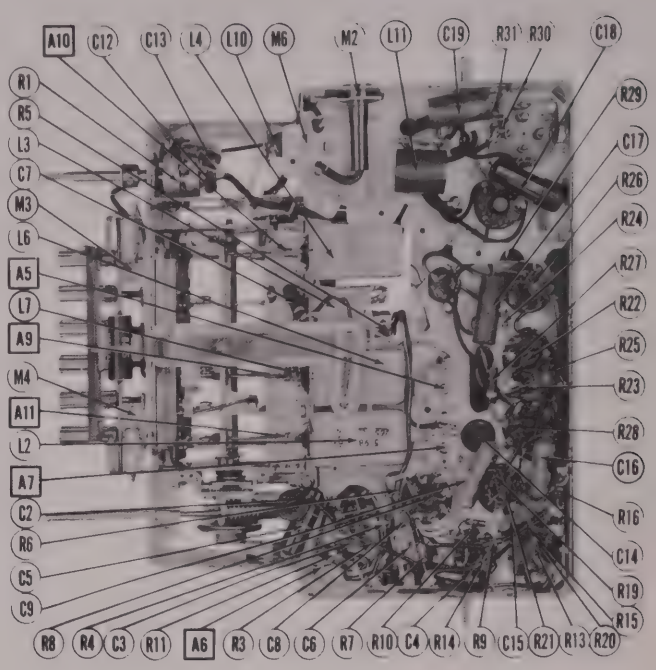
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SYLVANIA PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.2Ω	414-0001	6979	69A2	
	CONE DIA.	V. C. DIA.				
SP2	6X9	1"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SYLVANIA PART No.	MEISSNER PART No.	
L1	Ant. Hash Choke	1Ω		148-0001		
L2	Ant. Coil	13Ω		111-0010		
L3	IF Trap					
L4	RF Coil	13Ω		112-0008		
L5	Osc. Coil	1Ω				Tap at 1.8Ω
L6	Osc. Shunt Coil	4Ω				
L7	RF Choke	1.5Ω				
L8	1st. IF	48Ω	48Ω	121-0015		
L9	2nd. IF	48Ω	33KΩ	122-0015		
L10	Fil. Choke	.1Ω		145-0005		
L11	Hash Choke	.1Ω		147-0007		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115v	511-0001	A100	5300	5300	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			SYLVANIA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	14 Amp.	191-0002	562-0007	307014	155014A	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SYLVANIA PART No.		
M3	Bayonet	6-8	.4	White	611-0055		Type #55
M4	Bayonet	6-8	.4	White	611-0055		Type #55

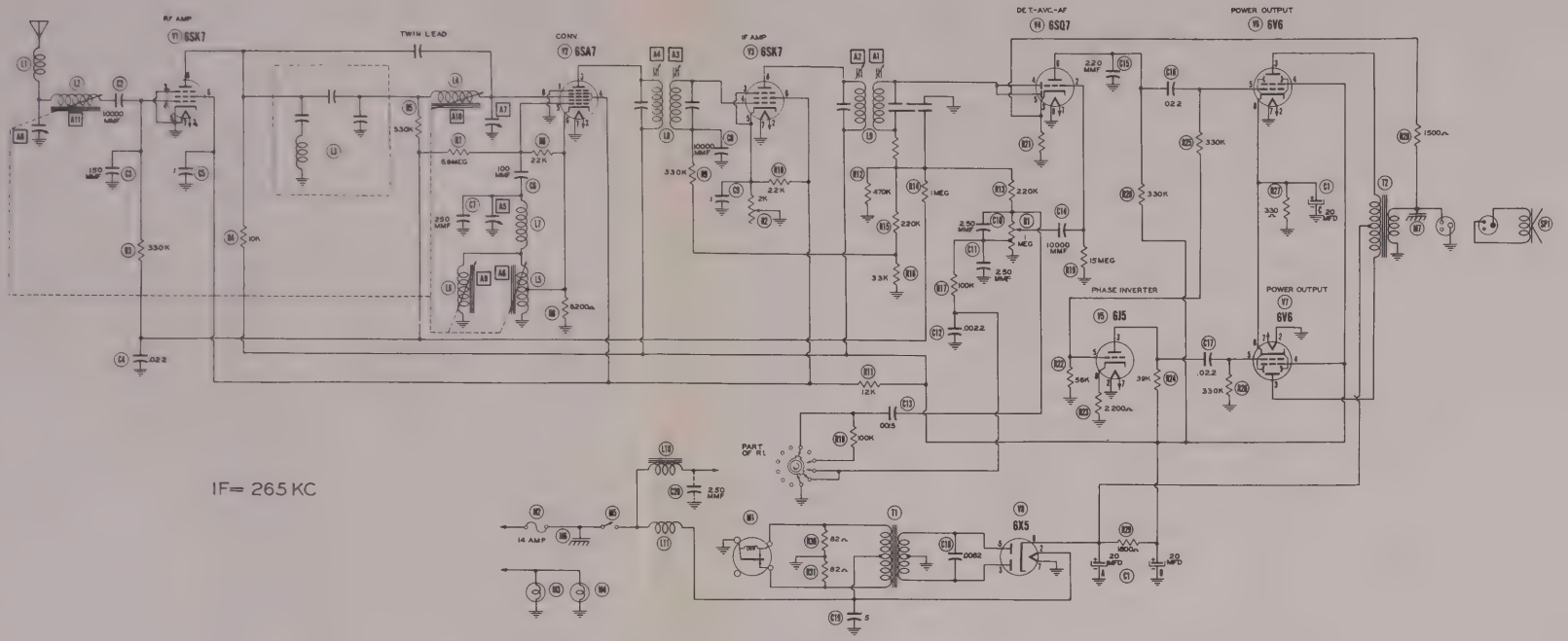
MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M5	Switch	571-0004	On-Off
M6	Spark Plate	167-0008	
M7	Spark Plate	167-0008	

PUSHBUTTON ADJUSTMENTS

Since the pushbuttons are mechanical, any button may be adjusted to any station within the receivers tuning range.

Tune in the desired station manually. Loosen the button by turning, with the fingers approxamately one turn counter-clockwise. Press the button by turning clockwise until finger tight. Repeat this procedure for each button.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7GT	0V	6.3VDC	0V	-.4VDC	0V	65VDC	0V	135VDC
V 2	6SA7GT	0V	6.3VDC	185VDC	65VDC	1-7VDC	0V	0V	-.3VDC
V 3	6SK7GT	0V	6.3VDC	7.3VDC 1.3VDC	0V	7.3VDC 1.3VDC	65VDC 55VDC	0V	185VDC 175VDC
V 4	6SQ7GT	0V	-.4VDC	.3VDC	-.4VDC	-.4VDC	65VDC	6.3VDC	0V
V 5	6J5GT	0V	0V	185VDC	0V	-1VDC	0V	6.3VDC	6.6VDC
V 6	6V6GT	-1VDC	6.3VDC	225VDC	185VDC	0V	0V	0V	14VDC
V 7	6V6GT	0V	0V	225VDC	185VDC	-1VDC	185VDC	6.3VDC	14VDC
V 8	6X5GT	0V	6.3VDC	280VAC	0V	280VAC	0V	0V	230VDC

† TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7GT	0Ω	.4Ω	0Ω	1.5Meg	0Ω	114KΩ	0Ω	112KΩ
V 2	6SA7GT	0Ω	.4Ω	11.8KΩ	114KΩ	28KΩ	1.8Ω	0Ω	1.5Meg
V 3	6SK7GT	0Ω	.4Ω	3KΩ 100Ω	280KΩ	3KΩ 100Ω	114KΩ	0Ω	11.8KΩ
V 4	6SQ7GT	0Ω	1.5Meg	47Ω	270KΩ	270KΩ	1320KΩ	.4Ω	0Ω
V 5	6J5GT	0Ω	0Ω	140KΩ	Inf.	56KΩ	Inf.	.4Ω	2.2KΩ
V 6	6V6GT	2Ω	.4Ω	135Ω	11.8KΩ	385KΩ	0Ω	0Ω	330Ω
V 7	6V6GT	0Ω	0Ω	1180Ω	11.8KΩ	330KΩ	11.8KΩ	.4Ω	330Ω
V 8	6X5GT	Inf.	.4Ω	200Ω	Inf.	330Ω	Inf.	0Ω	38KΩ

† MEASURED FROM PIN 8 OF V8

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

PHOTOFACT* Folder

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 19C6

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

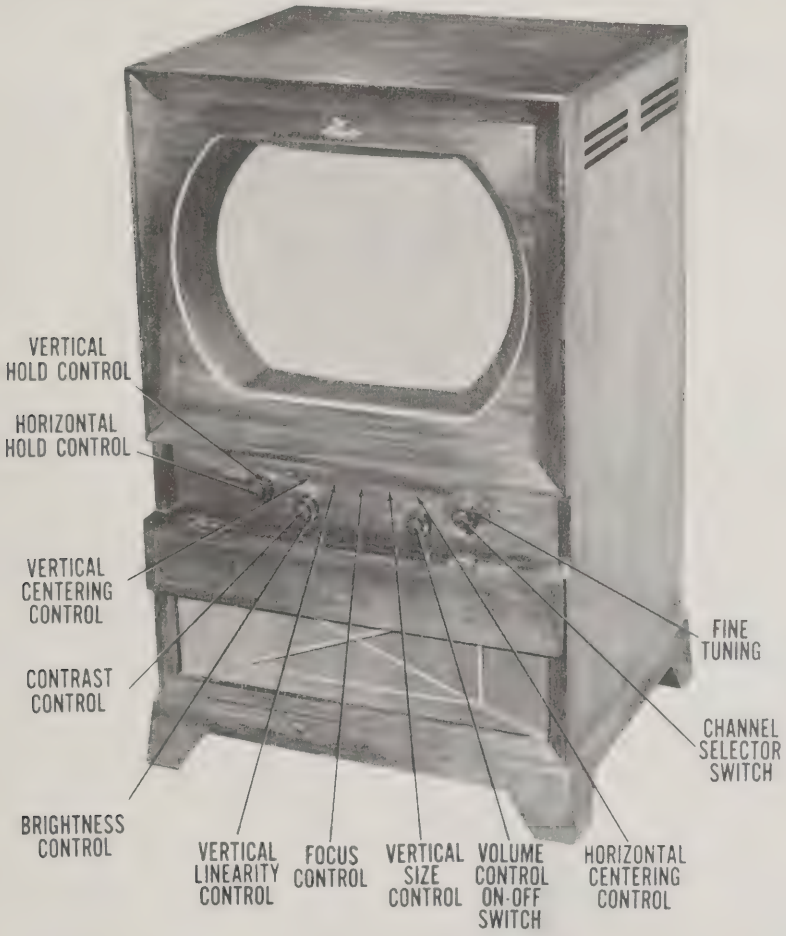
HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-51 SET 133 FOLDER 8

PHOTOFACT* Folder

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975



MAJESTIC MODEL 19C6

TRADE NAME	Majestic, Models G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975	
MANUFACTURER	Majestic Radio And Tel., Div. of Wilcox-Gay Corp., 70 Washington St., Brooklyn, New York	
TYPE SET	Television Receiver	
TUBES	Twenty	
POWER SUPPLY	110-120 Volts AC - 60 Cycle	RATING 1.7 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13	

INDEX

Alignment Instruction 6, 7
Disassembly Instruction 11
Horizontal Sweep Circuit Adjustment 11
Parts List and Description 12, 13, 14
Photographs
- Cabinet - Rear View 11
- Capacitor And Alignment Identification 4, 9
- Chassis - Top View 3
- RF Tuner 10
- Resistor And Inductor Identification 15, 16

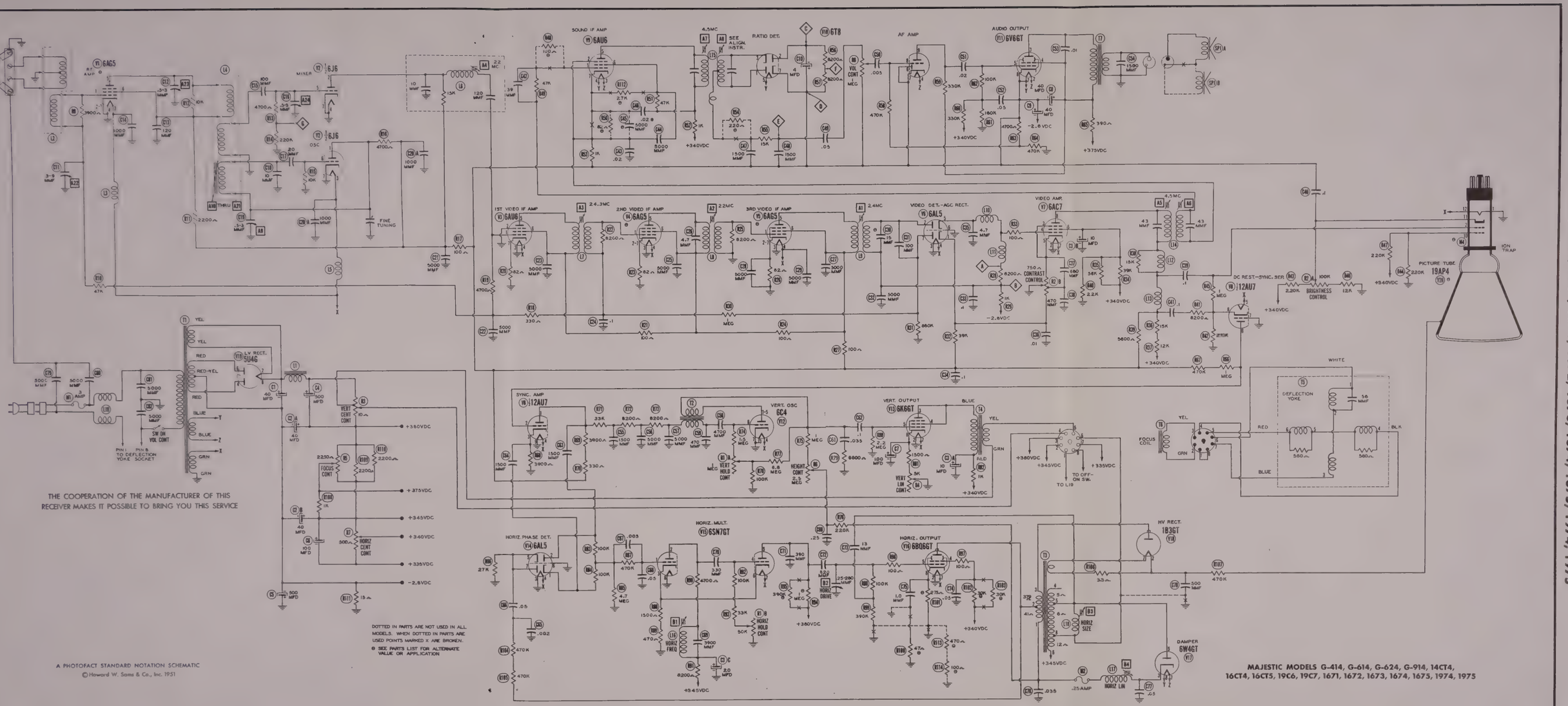
Schematic 2
Tube Placement Chart 5
Voltage And Resistance Measurements 8

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-51 SET 133 FOLDER 8



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

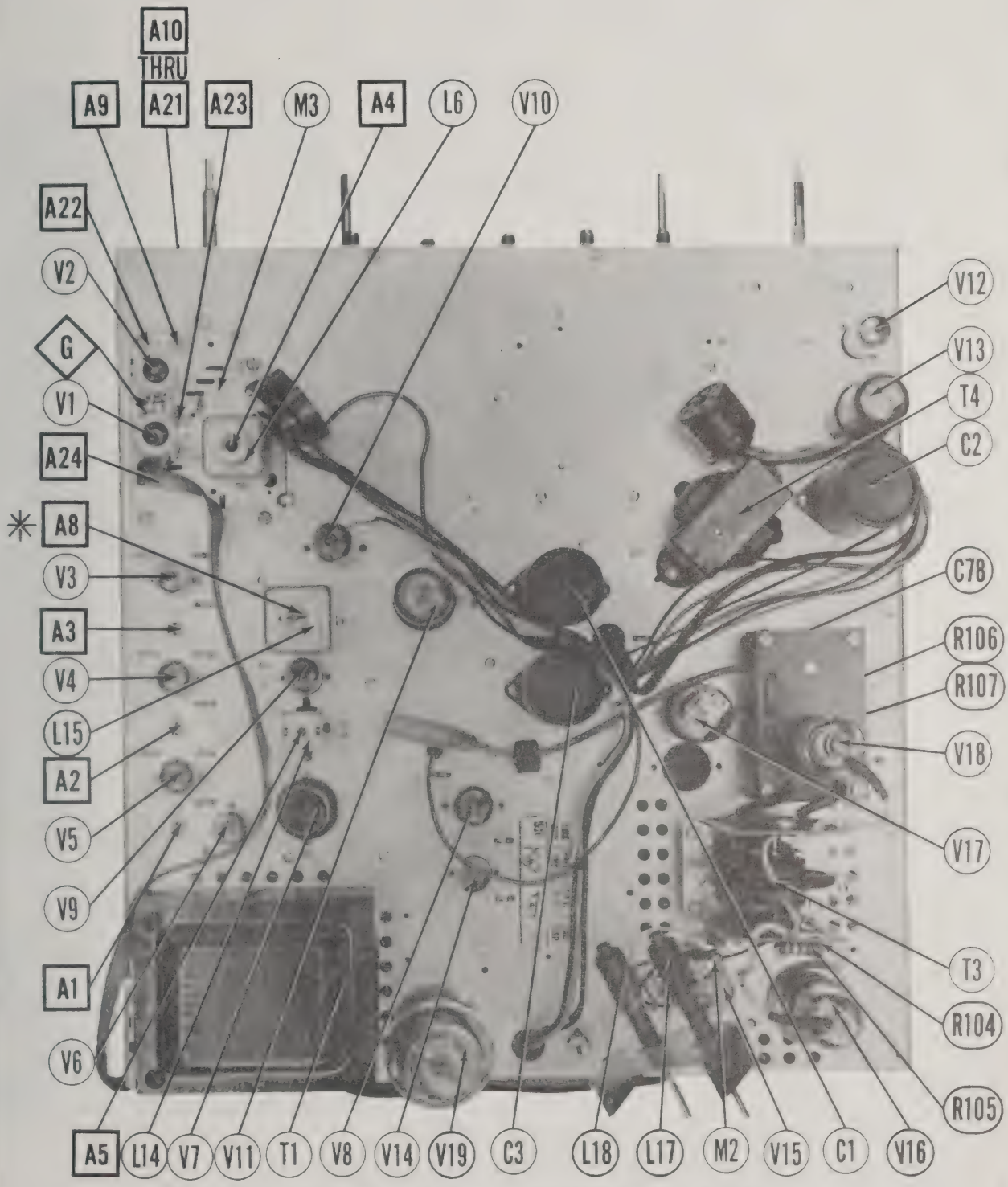
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

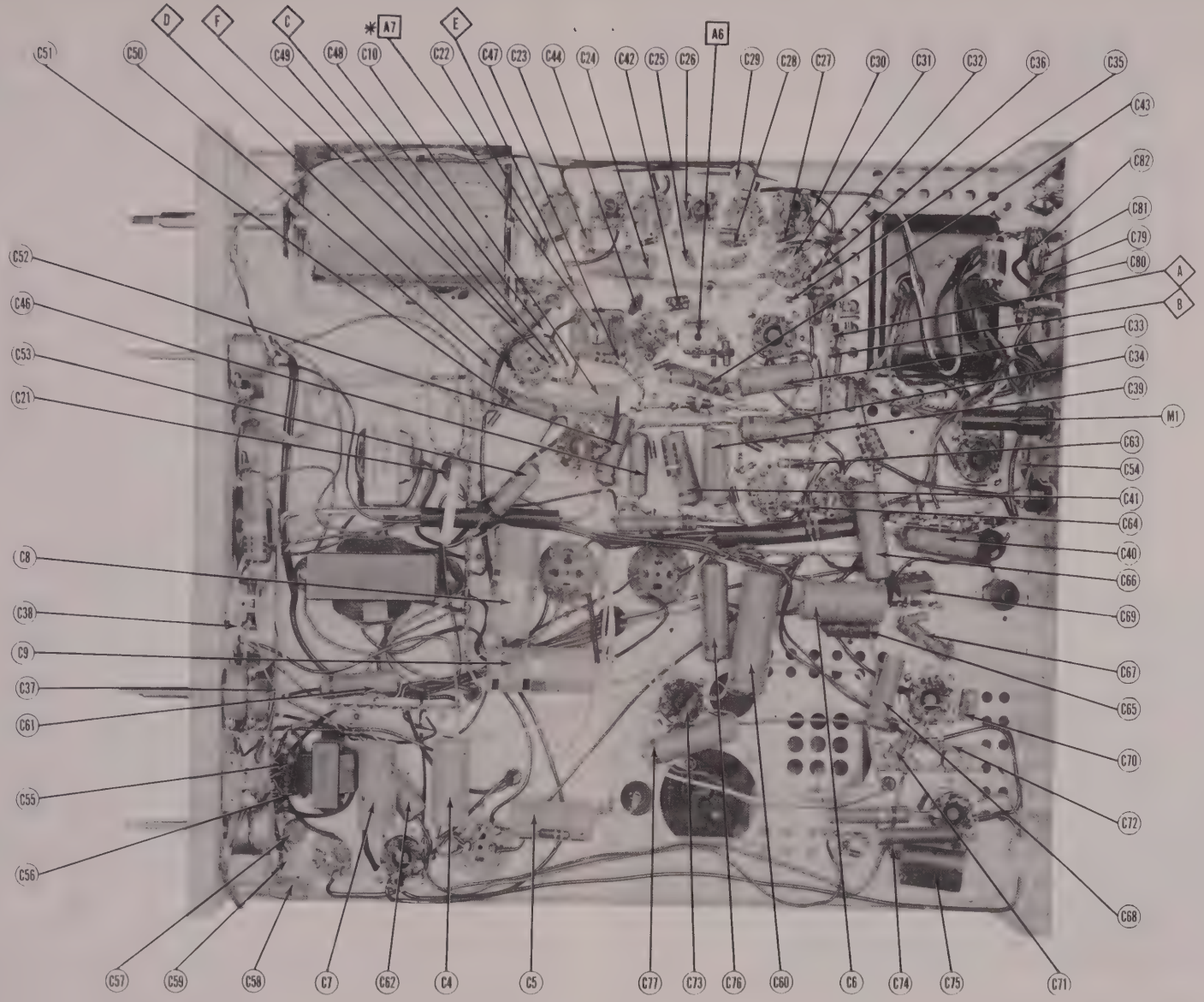
MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975



✳ SEE NOTE IN ALIGNMENT INSTRUCTIONS

CHASSIS TOP VIEW



* SEE NOTE IN ALIGNMENT INSTRUCTIONS

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V15) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), from its socket and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.

During video IF alignment the common lead of the VTVM is connected to approximately 2.8 volts with respect to chassis. Avoid grounding the VTVM case.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24.0MC (Unmod.)	Any	DC probe to Point (A). Common to Point (B).	A1	Adjust for maximum deflection.
2.	"	"	22.0MC	"	"	A2	"
3.	"	"	24.3MC	"	"	A3	"
4.	"	"	22.9MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. Connect a 10KΩ isolating resistor in series with the oscilloscope vertical input lead.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	23MC (10MC SWP)	20.25MC 22.0MC 24.75MC	Any	Vert. amp. to Point (A). Low side to chassis.		Check for response similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

During sound IF alignment the common lead of the VTVM is connected to approximately 125 volts with respect to chassis.

Avoid touching or grounding the VTVM case.

These receivers employ one of 3 ratio detector transformer, depending on the period of production. Types A and B transformers have the primary, (A7), on the bottom, and the secondary, (A8), on the top. Type C transformer has the primary on the top and the secondary on the bottom. The transformer may be identified by measuring the can height. Types A and B have a 2 3/4 inch can, and type C has a 3 inch can.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	1500MMF	High side to Pin 4 (grid) of 6AC7 (V7). Low side to chassis.	4.5MC	Any	DC probe to Point (C). Common to Point (D).	A5, A6, A7	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point (E). Common to Point (F).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection. See note under VTVM alignment concerning ratio detector transformer.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	1500MMF	High side to Pin 4 (grid) of 6AC7 (V7). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. to Point (C). Low side to chassis.	A5, A6, A7	Disconnect stabilizer capacitor C10. Adjust for maximum amplitude and symmetry as per figure 2.
7.	"	"	"	"	"	Vert. amp. to Point (E). Low side to chassis.	A8	Reconnect capacitor C10. Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25 209.75MC	12		A11	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A12	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A13	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A14	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A15	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A16	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A17	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A18	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A19	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A20	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Connect a short across C22.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point G Low side to chassis.	A22, A23, A24	Adjust for response curve similar to figure 5 with markers above 90%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A22, A23 and A24 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75 MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

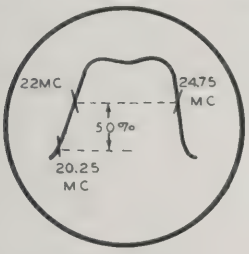


FIG. 1

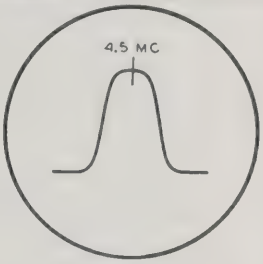


FIG. 2

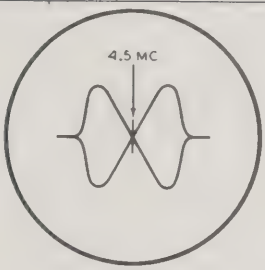


FIG. 3

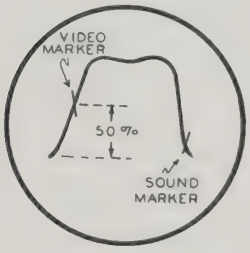


FIG. 4

FIG. 5

MAJESTIC MODELS G-414, G-614, G-624, G-914, 14CT4, 16CT4, 16CT5, 19C6, 19C7, 1671, 1672, 1673, 1674, 1675, 1974, 1975

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.3VDC	0V	6.3VAC	0V	110VDC	110VDC	0V		
V 2	6J6	80VDC	75VDC	6.3VAC	0V	-.6VDC	§-4.2VDC	0V		
V 3	6AU6	-.2VDC	0V	0V	6.3VAC	120VDC	120VDC	.6VDC		
V 4	6AG5	-.2VDC	.6VDC	0V	6.3VAC	123VDC	123VDC	.6VDC		
V 5	6AG5	0V	.7VDC	0V	6.3VAC	125VDC	125VDC	.7VDC		
V 6	6AL5	0V	-2.9VDC	0V	6.3VAC	-2.2VDC	0V	-.6VDC		
V 7	6AC7	0V	0V	2.4VDC	-2.4VDC	2.4VDC	165VDC	6.3VAC	155VDC	
V 8	12AU7	95VDC	33VDC	32VDC	6.3VAC	6.3VAC	33VDC	0V	3.2VDC	0V
V 9	6AU6	▲5VDC	▲7.8VDC	▲6.3VAC	▲ 0V	▲200VDC	▲65VDC	▲7.8VDC		
V 10	6T8	▲-.2VDC	▲-3VDC	▲-.2VDC	▲6.3VAC	▲ 0V	▲0V	▲0V	▲-.4VDC	105VDC
V 11	6V6GT	0V	▲6.3VAC	▲215VDC	▲225VDC	▲-11VDC	▲-12VDC	▲0V	125VDC	
V 12	6C4	230VDC 115VDC	0V	0V	6.3VAC	230VDC 115VDC	-5.2VDC -45VDC	0V		
V 13	6K6GT	0V	0V	330VDC 320VDC	330VDC 320VDC	0V	45VDC 0V	6.3VAC	60VDC 25VDC	
V 14	6AL5	3.5VDC	-3.5VDC	0V	6.3VAC	0V	0V	0V		
V 15	6SN7GT	.2VDC	280VDC	13VDC	-1.2VDC	135VDC	13VDC	6.3VAC	0V	
V 16	6BQ6GT	0V	0V	180VDC	180VDC	.2VDC	.2VDC	6.3VAC	28VDC	TOP CAP *
V 17	6W4GT	0V	0V	560VDC	0V	340VDC	340VDC	▲6.3VAC	▲ 0V	
V 18	1B3GT	* DO NOT MEASURE								
V 19	5U4G	0V	385VDC	0V	380VAC	0V	380VAC	0V	385VDC	
V 20	19AP4	0V	.6VDC	PIN 10 150VDC	PIN 11 125VDC	PIN 12 6.3VAC				

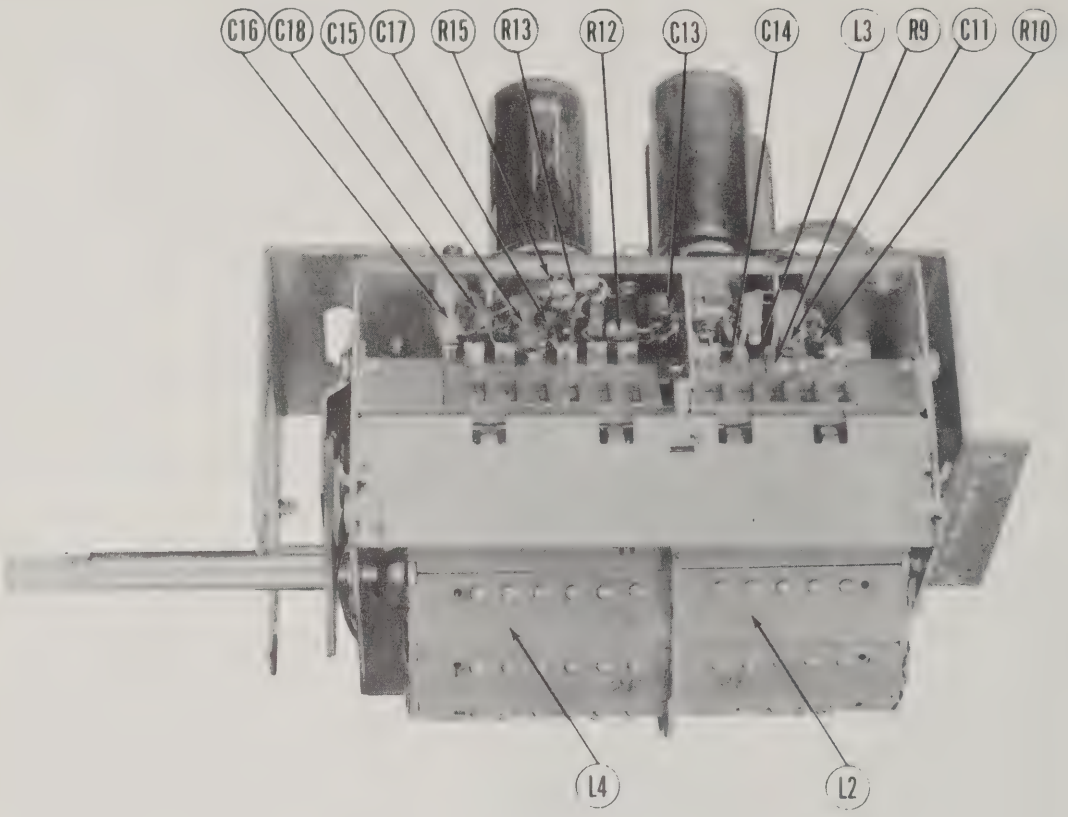
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL COUNTER CLOCKWISE
CENTERING CONTROLS COUNTER CLOCKWISE
▲ MEASURED FROM PIN 8 OF V11
§ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT MEASURE

RESISTANCE READINGS

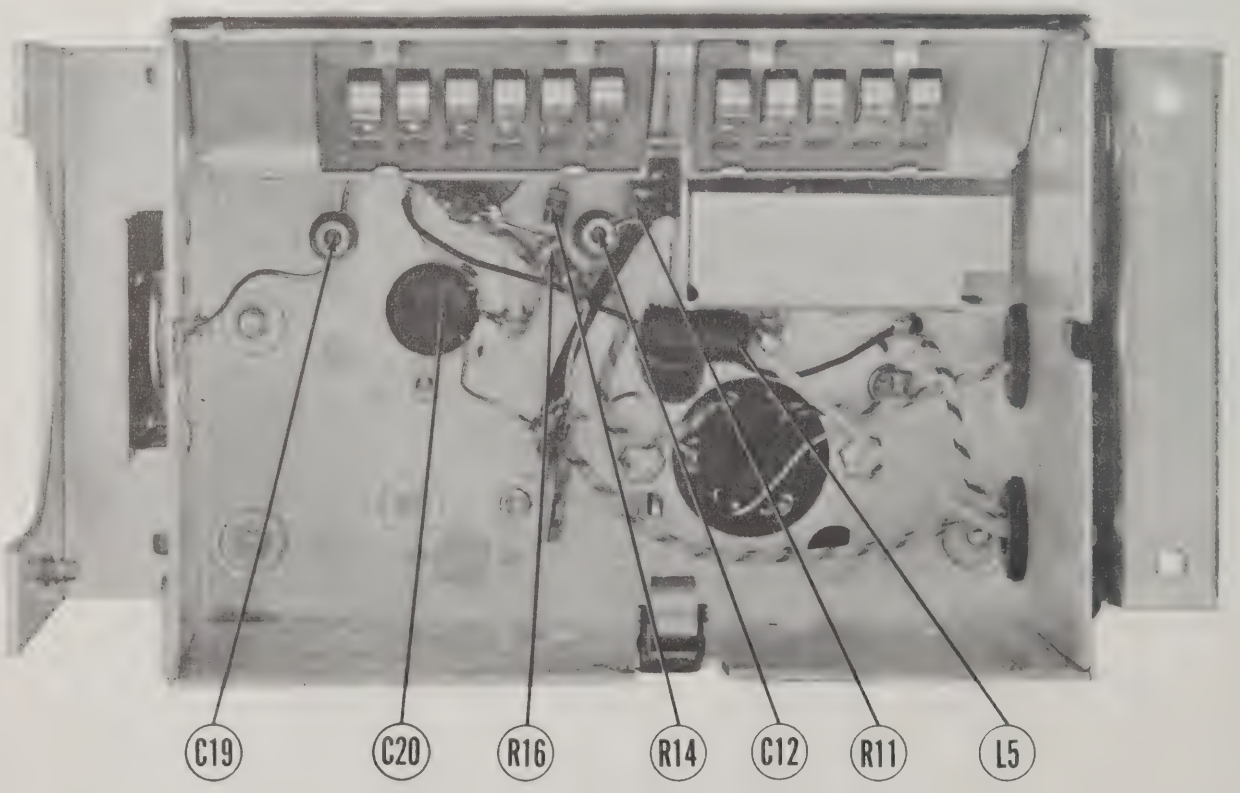
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	1.7Meg	0Ω	.1Ω	0Ω	▲2.3KΩ	▲2.3KΩ	0Ω		
V 2	6J6	▲4.8KΩ	▲15KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AU6	1.7Meg	0Ω	0Ω	.1Ω	▲300Ω	▲300Ω	82Ω		
V 4	6AG5	1.7Meg	82Ω	0Ω	.1Ω	▲200Ω	▲200Ω	82Ω		
V 5	6AG5	.5Ω	82Ω	0Ω	.1Ω	▲100Ω	▲100Ω	82Ω		
V 6	6AL5	0Ω	1KΩ	0Ω	.1Ω	9.2KΩ	0Ω	680KΩ		
V 7	6AC7	0Ω	0Ω	750Ω	9.3KΩ	750Ω	†16KΩ	.1Ω	▲5.6KΩ	
V 8	12AU7	▲4.2KΩ	▲1.5Meg	3.9KΩ	.1Ω	.1Ω	▲1.5Meg	0Ω	270KΩ	0Ω
V 9	6AU6	▲48KΩ	▲1KΩ	▲.1Ω	▲0Ω	†1.5KΩ	†22KΩ	▲1KΩ		
V 10	6T8	Inf.	▲16KΩ	Inf.	▲.1Ω	▲0Ω	▲0Ω	▲0Ω	▲470KΩ	†330KΩ
V 11	6V6GT	0Ω	▲.1Ω	†775Ω	†465Ω	225KΩ	130KΩ	▲0Ω	20KΩ	
V 12	6C4	#1.2Meg #3Meg	Inf.	0Ω	.1Ω	#1.2Meg #3Meg	2.6Meg	0Ω		
V 13	6K6GT	Inf.	0Ω	†2.2KΩ	†2.2KΩ	2.2Meg	5KΩ 0Ω	.1Ω	6.5KΩ 1.5KΩ	
V 14	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	27KΩ	0Ω	27KΩ		
V 15	6SN7GT	5.2Meg	†13KΩ	2KΩ	185KΩ	†270KΩ	2KΩ	.1Ω	0Ω	
V 16	6BQ6GT	Inf.	0Ω	†16KΩ	†16KΩ	490KΩ	490KΩ	.1Ω	250Ω	TOP CAP #70Ω
V 17	6W4GT	Inf.	390KΩ	8Meg	Inf.	†320Ω	†320Ω	▲.1Ω	▲0Ω	
V 18	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #450Ω
V 19	5U4G	Inf.	20KΩ	Inf.	55Ω	Inf.	55Ω	Inf.	20KΩ	
V 20	19AP4	0Ω	1.3Meg	PIN 10 †115KΩ	PIN 11 70KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL COUNTER CLOCKWISE
CENTERING CONTROLS COUNTER CLOCKWISE
▲ MEASURED FROM PIN 8 OF V11
† MEASURED FROM PIN 8 OF V19
# MEASURED FROM PIN 3 OF V17

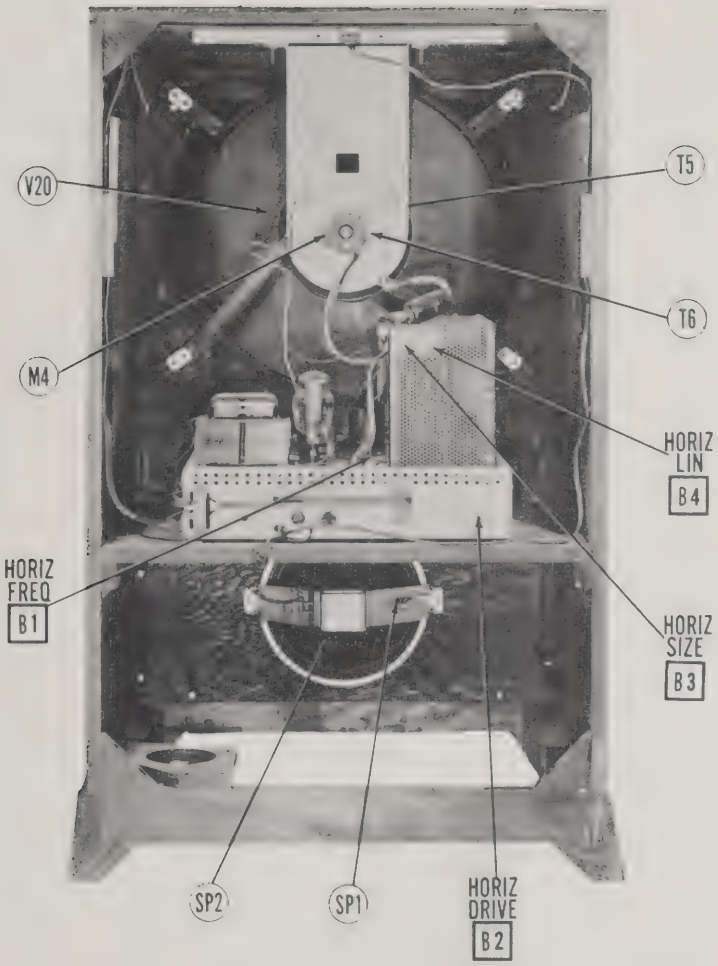
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B2), counter clockwise as far as possible without crowding the right half of the picture.

Adjust the horizontal size slug, (B3), until the picture fills the mask horizontally.

Adjust the horizontal linearity slug, (B4), until the picture is symmetrical from left to right.

Readjustment of B2 may be required to obtain best horizontal linearity.

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Remove three hex head bolts from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Disconnect yoke cable.
6. Disconnect picture tube socket.
7. Remove ground lead.
8. Disconnect high voltage lead.
9. Remove six metal screws from chassis. Remove chassis.
10. Remove two hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6AG5	6AG5	7BD	
B	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4A	2nd Video IF Amp.	6AG5	6AG5	7BD	
B	2nd Video IF Amp.	6BC5	6BC5	7BD	
V5A	3rd Video IF Amp.	6AG5	6AG5	7BD	
B	3rd Video IF Amp.	6BC5	6BC5	7BD	
V6	Video Detector - AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Amplifier	6AC7	6AC7	8N	
V8	DC Restorer - Sync. Separator - Sync. Amplifier	12AU7	12AU7	9A	
V9	Sound IF Amplifier	6AU6	6AU6	7BK	
V10	Ratio Detector - AF Amplifier	6T8	6T8	9E	
V11	Audio Output	6V6GT	6V6GT	7AC	
V12	Vert. Oscillator	6C4	6C4	6BG	
V13	Vert. Output	6K6GT	6K6GT	7S	
V14	Horiz. Phase Det.	6AL5	6AL5	6BT	
V15	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	
V19	LV Rectifier	5U4G	5U4G	5T	
V20A	Picture Tube	19AP4	19AP4	12D	
B	Picture Tube	16DP4	16DP4	12D	
C	Picture Tube	16EP4	16EP4	12D	
D	Picture Tube	16FP4	16FP4	12D	
E	Picture Tube	16HP4	16HP4	12D	
F	Picture Tube	16JP4	16JP4	12D	
G	Picture Tube	16LP4	16LP4	12D	
H	Picture Tube	16RP4	16RP4	12D	
I	Picture Tube	16TP4	16TP4	12D	
J	Picture Tube	16XP4	16XP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	40	475	C-5.433-1	E4A59			UP2250		TVL-1820 Filter
C2A	40	475	C-5.434-1	E4B114			UP4450		TVL-2830 ▲ Filter
B	40	475							▲ Filter
C3A	10	450	C-5.421-5	A7H2222J			UPT11145		TVL-3780 ▲ Vert. Output Dec.
B	10	450							■ V. Amp. Screen
C	20	450							▲ Horiz. MV Dec.
C4	500	6	B-5.431	PRS6/500			BRH605A		TVA-1103 Vert. Cent. Cont. Byp.
C5	500	6	B-5.431	PRS6/500			BRH605A		TVA-1103 Filter
C6	100	50	C-5.430-3	PRS50/100			BRH50I		TVA-1310 Hor. Cent. Cont. Byp.
C7	100	50	C-5.430-3	PRS50/100			BRH50I		TVA-1310 Vert. Output Cathode
C8	40	350	B-5.432	PRS450/40			BR4035		TVA-1611 Decoupling
C9	40	350	V-5.432	PRS450/40			BR4035		Decoupling
C10	4	50	C-5.430-1	PRS150/4			BR550		TVA-1303 Stabilizing Cap
C11	3-9								Variable Trimmer
C12	.5-3				829-3				Variable Trimmer
C13	120			SI120	D6-121		BRH605A	GP2K-120	19C29 RF Amp. Dec.
C14	1000			BPD-001	DD-102		801-001	GP2M-1000	19C1 RF Amp. Fil.
C15	100			SI100N750	TCN-100		N750L-100	GP2C16	RF Coupling
C16	.5-3				829-3				Variable Trimmer
C17	20			SI20NPO	TCZ-20		NPOK-20		Osc. Grid Cap
C18	10			SI10N750	TCN-10		N750L-10	19C4	Fixed Trimmer
C19	.5-3				829-3				Variable Trimmer
C20A	1000			BPD-2X001	DD-2-102			812-2X001	29C7 RF Bypass
B	1000								Conv. Fil. Bypass
C21	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C22	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C23	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	1st V. IF Dec.
C24	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	AGC Filter
C25	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd V. IF Dec.
C26	4.7		C-4.111-6	SI4.7NPO	TCZ-4.7		NPOK-4.7		Fixed Trimmer
C27	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Dec.
C28	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Catholde
C29	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Fil.
C30	15		C-4.109-16	SI15	D6-150		GP1K-15	19C22	Fixed Trimmer *
C31	100		C-4.109-10	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C32	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C33	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C34	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C35	4.7		C-4.111-6	SI4.7NPO	TCZ-4.7	5W5V5	NPOK-4.7		V. Diode Filter
C36	.01	400	D-3.100-7	P488-01	D6-103	PTE4S1	821-01	4TM-S1	DAGC Dec.
C37	680		C-4.108-5	SI680	D6-681	1W5T7	GP2K-680	19C17	V. Amp. Cathode
C38	470		C-4.109-2	SI470	D6-471	5W5T5	GP2K-470	19C15	V. Amp. Cathode
C39	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C40	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	Pic. Tube Cathode
C41	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C42	39	500	D-4.104-21	SI39	D6-390	5W5Q4	GP1K-39	1FM-44	S. IF Coupling
C43	.02	400	D-3.100-11	P488-02	DF-203	PTE4S2		4TM-S2	S. IF Dec.
C44	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	S. IF Screen
C45	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	S. IF Cathode †
C46	.02	400	D-3.100-11	P488-02	DF-203	PTE4S2		4TM-S2	S. IF Dec. §
C47	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Diode Load Cap
C48	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	De-emphasis
C49	.05	400	D-3.100-19	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C50	.005	400	D-3.100-4	P688-005	D6-502	PTE8D5	811-005	6TM-D5	Audio Coupling
C51	.02	400	D-3.100-11	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C52	.05	400	D-3.100-19	P488-05	DF-503	PTE4S5		4TM-S5	Bias Filter
C53	.01	400	D-3.100-7	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate Byp.
C54	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Fixed Trimmer
C55	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Integrator Net
C56	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Integrator Net

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Integrator Net
C58	4700	500	D-4.105-24	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid
C59	470		C-4.109-2	SI470	D6-471	5W5T5	GP2K-470	19C15	Vert. Osc. Grid
C60	.25	600	D-3.100-32	684-25		GT6P25		6TM-P25	Vert. Osc. Dec.
C61	.035	600	D-3.100-46	P688-033					Vert. Discharge
C62	.1	400	D-3.100-23	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C63	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Horiz. Sync. Coupling
C64	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Horiz. Sync. Coupling
C65	.002	1600	D-3.100-52	P1688-002		PTE16D2		MB-D2	Voltage Divider
C66	.05	1000	D-3.100-51	P1088-05		GT16S5		MB-S5	Horiz. Feedback
C67	.005	600	D-3.100-4	P688-005	D6-502	PTE8D5	811-005	MB-S5	AFC Filter
C68	.05	400	D-3.100-19	P488-05	DF-503	PTE4S5		4TM-S5	AFC Filter
C69	3900	500	D-4.105-20	1464-004		1DR5D4		MS-34	Fixed Trimmer
C70	330 †	500	D-4.104-80	SI330	D6-331	5R5T3	GP2K-330	19C14	Horiz. MV Feedback
C71	390	500	D-4.104-63	1469-0004	D6-391	5R5T4	GP2K-390	MS-34	Horiz. Discharge
C72	820	500	D-4.104-83	1468-00075	D6-751	1W5T8	GP2K-750	1FM-375	Horiz. Sweep Coupling
C73	13	2000	D-4.121						Horiz. Feedback
C74	.05	400	D-3.100-19	P488-05	DF-503	PTE4S5		4TM-S5	Horiz. Output Screen
C75	1.0	150	B-3.104	484-1.0				2TM-M1	Horiz. Output Cathode
C76	.035	1000	D-3.100.50	P1088-033					Damper Filter
C77	.05	1000	D-3.100-51	P1088-05		GT16S5		MB-S5	Damper Filter
C78	500	20000	B-4.122	HV20C	TV2-502				HV Filter
C79	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Line Ant. Coupling
C80	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Line Ant. Coupling
C81	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Line Filter
C82	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	29C1	Line Filter

* Some models use 10MMF in this application.
† Not used in all models.
‡ Some models use 5000MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	1/2		Concentrikit			
B	50KΩ	1/2	C-8.217-3	B11-137 ∮	RTV-2		Vertical Hold Control - Front
C	Shaft End			B11-123 ∮			Horizontal Hold Control - Rear
R2A	100KΩ	1/2	C-8.226-1	E-187 ∮	RTV-104	8BB-541	Attach Per Instructions in "Concentrikit"
B	750Ω	2					Brightness Control - Front
R3	10Ω	2	C-8.206-2	W10X5 #	RTV-98		Contrast Control - Tapped @ 400Ω - Rear
							Vertical Centering Control - Wire Wound-Center Tapped
R4	5000Ω	1	C-8.206-6	W-5000 #	43-5000 #	VK-135	Vertical Linearity Control - Wire Wound
R5	225Ω	4	C-8.221		RTV-9		Focus Control - Wire Wound
R6A	2.5Meg	1/2	C-8.207-5	QH-239	AM-84-S	AN-83	Vertical Size Control
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R6A Per Instructions
R7	500Ω	2	C-8.206-5	W-500 #	43-500 #	VK-127	Horizontal Centering Control - Wire Wound
R8A	1Meg	1/2	C-8.227-1	QH3-137	AG-63-Z	B-70-S	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R8A Per Instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R8A Per Instructions

∮ Additional Parts to be Used With "Concentrikit".
Fashion Shaft to Duplicate Original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R9	3900Ω	1/2		BTS-3900	Antenna Coil Shunt
R10	47KΩ 20%	1/2		BTS-47K	AGC Network
R11	2200Ω 20%	1/2		BTS-2200	RF Amp. Decoupling
R12	10KΩ	1/2		BTS-10K	RF Coil Shunt
R13	4700Ω	1/2		BTS-4700	Mixer Grid
R14	220KΩ 20%	1/2		BTS-220K	Mixer Grid
R15	10KΩ	1/2		BTS-10K	Osc. Grid
R16	4700Ω	1/2		BTS-4700	Osc. Plate
R17	100Ω 20%	1/2	D-7.101-226	BTS-100	Decoupling
R18	330Ω 20%	1/2	D-7.101-237	BTS-330	AGC Network
R19	4700Ω 20%	1/2	D-7.101-45	BTS-4700	1st Video IF Amp. Grid
R20	82Ω	1/2	D-7.101-235	BTS-82	1st Video IF Amp. Cathode
R21	100Ω 20%	1/2	D-7.101-226	BTS-100	1st Video IF Amp. Decoupling
R22	8200Ω	1/2	D-7.101-55	BTS-8200	2nd Video IF Transformer Shunt
R23	82Ω	1/2	D-7.101-235	BTS-82	2nd Video IF Amp. Cathode
R24	100Ω 20%	1/2	D-7.101-226	BTS-100	Decoupling
R25	8200Ω	1/2	D-7.101-55	BTS-8200	3rd Video IF Transformer Shunt
R26	82Ω	1/2	D-7.101-235	BTS-82	3rd Video IF Amp. Cathode
R27	100Ω 20%	1/2	D-7.101-226	BTS-100	Decoupling
R28	8200Ω	1/2	D-7.101-55	BTS-8200	Video Det. Diode Load
R29	1000Ω 20%	1/2	D-7.101-17	BTS-1000	Bias Network
R30	1Meg 20%	1/2	D-7.101-142	BTS-1Meg	AGC Network
R31	680KΩ 20%	1/2	D-7.101-135	BTS-680K	AGC Load
R32	39KΩ	1/2	D-7.102-91	BTA-39K	Voltage Divider
R33	100Ω 20%	1/2	D-7.101-226		Parasitic Suppressor
R34	39KΩ	2	D-7.102-153	BTS-39K	Video Amp. Screen
R35	56KΩ	2	D-7.103-160	BTS-56K	Video Amp. Screen
R36	15KΩ	2	D-7.103-135	BTS-15K	Video Amp. Plate
R37	12KΩ	2	D-7.103-132	BTS-12K	Video Amp. Plate
R38	15KΩ 20%	1/2	D-7.101-66	BTS-15K	Video Peaking Coil Shunt
R39	5600Ω	1	D-7.102-55	BTA-5600	Voltage Divider
R40	22KΩ	1	D-7.102-81	BTA-22K	Voltage Divider
R41	8200Ω	1	D-7.101-55	BTS-8200	Isolation
R42	270KΩ	1	D-7.101-118	BTS-270K	DC Restorer Diode Load
R43	220KΩ 20%	1/2	D-7.101-115	BTS-220K	Voltage Divider
R44	220KΩ 20%	1/2	D-7.101-115	BTS-220K	Voltage Divider
R45	1Meg 20%	1/2	D-7.101-142	BTS-1Meg	Picture Tube Grid
R46	12KΩ	1/2	D-7.101-82	BTS-12K	Picture Tube Cathode
R47	220KΩ 20%	1/2	D-7.101-115	BTS-220K	Acc. Anode Load
R48	100Ω	1	D-7.101-226		Parasitic Suppressor - See Note 1
R49	47KΩ	1	D-7.101-87	BTS-47K	Sound IF Amp. Grid
R50	82Ω	1	D-7.101-235	BTS-82	Sound IF Amp. Cathode - See Note 1
R51	47KΩ	1	D-7.102-95	BTA-47K	Sound IF Amp. Screen
R52	1000Ω	1	D-7.101-17	BTS-1000	Sound IF Amp. Decoupling
R53	1000Ω	1	D-7.101-17	BTS-1000	Bias Network
R54	220Ω	1	D-7.101-234	BTS-220	Balancing - See Note 1
R55	15KΩ	1	D-7.101-66	BTS-15K	De-emphasis

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	IRC PART No.	IDENTIFICATION CODES
R56	8200Ω	1/2	D-7.101-55	BTS-8200	Ratio Det. Diode Load
R57	8200Ω	1/2	D-7.101-55	BTS-8200	Ratio Det. Diode Load
R58	470KΩ	1/2	D-7.101-129	BTS-470K	AF Amp. Grid
R59	330KΩ 5%	1/2	D-7.101-120	BTS-330K-5%	AF Amp. Plate
R60	330KΩ 5%	1/2	D-7.101-120	BTS-330K-5%	Bias Network
R61	180KΩ 5%	1/2	D-7.101-110	BTS-180K-5%	Bias Network
R62	100KΩ	1/2	D-7.101-101	BTS-100K	Horiz. Sync. Coupling
R63	4700Ω	1/2	D-7.101-45	BTS-4700	Output Cathode
R64	470KΩ	1/2	D-7.101-129	BTS-470K	Bias Network
R65	390K	2	D-7.103-69	BW-2-390	Decoupling - Wire Wound
R66	1Meg 20%	1/2	D-7.101-142	BTS-1Meg	Sync. Sep. Plate
R67	470KΩ 20%	1/2	D-7.101-129	BTS-470K	Sync. Sep. Plate
R68	3900Ω	1/2	D-7.101-41	BTS-3900	Sync. Amp. Cathode
R69	3900Ω	1/2	D-7.101-41	BTS-3900	Sync. Amp. Plate
R70	330Ω 20%	1/2	D-7.101-237	BTS-330	Sync. Amp. Plate
R71	33KΩ 20%	1/2	D-7.101-80	BTS-33K	Integrator
R72	8200Ω	1/2	D-7.101-55	BTS-8200	Integrator
R73	8200Ω	1/2	D-7.101-55	BTS-8200	Integrator
R74	1.5Meg	1/2		BTS-1.5Meg	Vertical Osc. Grid
R75	1Meg 20%	1/2	D-7.101-142	BTS-1Meg	Vertical Osc. Plate
R76	220KΩ 20%	1/2	D-7.101-115	BTS-220K	Vertical Osc. Plate Decoupling
R77	6.8Meg 20%	1/2	D-7.108-185	BTS-6.8Meg	Voltage Divider
R78	100KΩ 20%	1/2	D-7.101-101	BTS-100K	Voltage Divider
R79	6800Ω	1/2	D-7.101-51	BTS-6800	Vertical Peaking
R80	2.2Meg 20%	1/2	D-7.101-156	BTS-2.2Meg	Vertical MV Cathode
R81	1500Ω	1/2	D-7.101-23	BTS-1500	Vertical Output Cathode
R82	1000Ω	1/2	D-7.101-17	BTS-1000	Vertical Output Plate Decoupling
R83	100KΩ 20%	1/2	D-7.101-101	BTS-100K	Horizontal Phase Det. Diode Load
R84	100KΩ 20%	1/2	D-7.101-101	BTS-100K	Horizontal Phase Det. Diode Load
R85	4.7Meg	1/2	D-7.101-179	BTS-4.7Meg	Horizontal Phase Det. Diode Load
R86	27KΩ	1/2	D-7.101-76	BTS-27K	Horizontal Phase Det. Diode Load
R87	470KΩ 20%	1/2	D-7.101-129	BTS-470K	Horizontal AFC Filter
R88	1500Ω	1/2	D-7.101-23	BTS-1500	Horizontal MV Cathode
R89	470Ω	1/2	D-7.101-2	BTS-470	Horizontal MV Cathode
R90	4700Ω 20%	1/2	D-7.101-45	BTS-4700	Horizontal MV Plate
R91	8200Ω	1/2	D-7.101-55	BTS-8200	Horizontal MV Plate Decoupling
R92	100KΩ	1/2	D-7.101-101	BTS-100K	Horizontal MV Grid
R93	33KΩ	1/2	D-7.101-80	BTS-33K	Horizontal MV Grid
R94	1Meg 20%	1/2	D-7.101-142	BTS-1Meg	Horizontal MV Plate - See Note 3
R95	390KΩ	1/2	D-7.101-125	BTS-390K	Horizontal MV Plate - See Note 3
R96	100Ω 20%	1/2	D-7.101-226		Parasitic Suppressor
R97	100Ω 20%	1/2	D-7.101-226		Parasitic Suppressor
R98	100KΩ 20%	1/2	D-7.101-101	BTS-100K	Horizontal Output Grid
R99	390KΩ	1/2	D-7.101-125	BTS-390K	Horizontal Output Grid
R100	47Ω 20%	10	D-7.101-240	BW-½-47	Current Limiting - See Note 6
R101	275Ω	10			Horizontal Output Cathode - Wire Wound - See Note 2
R102	30KΩ 5%	2	D-7.103-147		Horizontal Output Screen - See Note 1
R103	30KΩ 5%	2	D-7.103-147		Horizontal Output Screen - See Note 4
R104	470KΩ 20%	1	D-7.102-137	BTA-470K	Horizontal Feedback
R105	470KΩ 20%	1	D-7.102-137	BTA-470K	Horizontal Feedback
R106	3.3Ω	1/2	C-8.212-1	BW-½-3.3	HV Rectifier Filament - Wire Wound
R107	470KΩ 20%	1	D-7.102-137		HV Filter
R108	1000Ω 20%	2	D-7.103-87	BTB-1000	Focus Control Shunt
R109	2200Ω	2	D-7.103-100	BTB-2200	Focus Coil Shunt
R110	2200Ω	2	D-7.103-100	BTB-2200	Focus Coil Shunt
R111	15Ω	1/2	C-8.212-3	BW-½-15	Bias Network - Wire Wound
R112	27KΩ	1/2		BTS-27K	Voltage Divider - See Note 1
R113	470Ω	10	B-6.215-5		Horizontal Output Cathode - Wire Wound - See Note 5
R114	100Ω	2	D-7.103-44	BW-2-100	Horizontal Output Cathode - See Note 5

Note 1. Not used in all models.
Note 2. Some models use 250Ω resistor in this application.
Note 3. Some models use single 270KΩ 1 watt resistor in place of R94 and R95.
Note 4. Models 14CT4, 1674 and G-414 use 12KΩ resistor in this application and R102 is omitted.
Note 5. Used in models 14CT4, 1674 and G-414 Only.
Note 6. Not used in models 14CT4, 1674 and G-414.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 1.7A	800VCT .200ADC	5VAC @ 3A	6.3VAC @ 2.5A SEC. 4 6.3VAC @ 5.0A	D9.235	P6156 ⑤ and P5014 ⑥		

⑤ Drill new mounting holes.
⑥ Mount separately for SEC. # 3.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	155Ω	1100Ω	C-9.230-3			TB0-1	Vert. Block Osc. Trans.
T3	420Ω Tap 41Ω	230 Tap @ 12Ω, 18Ω SEC. 2 0Ω	C9.244	P-8130			Horizontal Output Trans.
T4	750Ω	8.7Ω	C9.228-4	A-8112			Vertical Output Trans.
T5 A	14Ω			DY-7			Horizontal Deflection Coil
B	65Ω		C9.242				Vertical Deflection Coil
T6	470Ω		C9.243				Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	3.5KΩ	3.7Ω	310Ω	.5Ω	C9.241.2	A-3877 ④	A-2930 ④	RQ-9 ④	④ Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	MAJESTIC PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.7Ω	C30.320 ①	10J12	10A4A	① Used in all consolettes and consoles.
B	PM	3.7Ω	C30.321 ②	6J4	6A15	② Used in some console models.
C	PM	3.7Ω	C30.326 ③	5J4	5A1	③ Used in models 1671
	CONE DIA.	V. C. DIA.				
SP2A	10"	1"				
B	6"	9/16"				
C	5"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.200A	64Ω	3.2 Henries	C9.237.2	C-2325 ④	C-2974 ④	TR4200 ④	④ Drill one new mounting hole.

COILS (RF-IF)

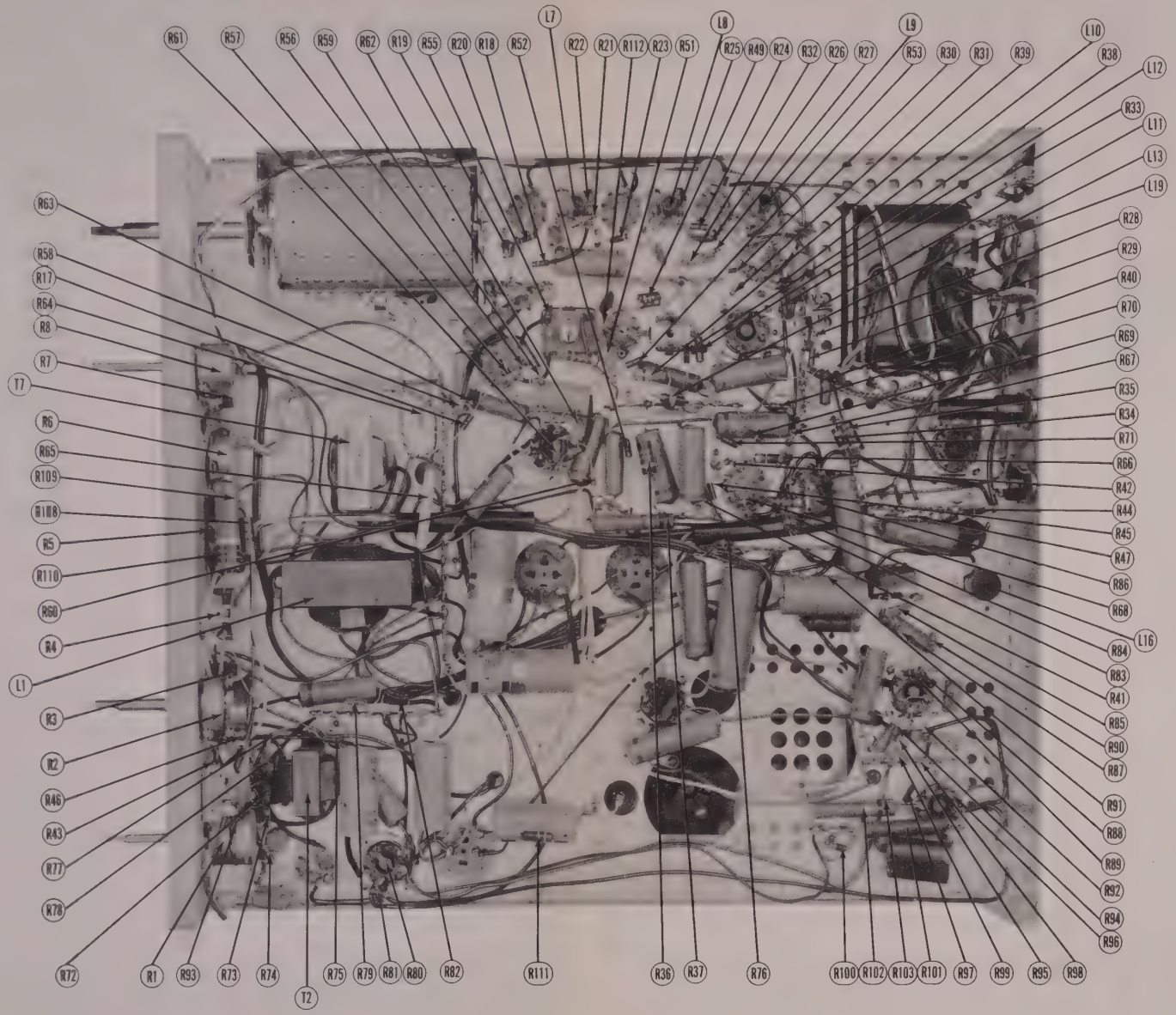
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MAJESTIC PART No.	MEISSNER PART No.	
L2	Antenna Coil	0Ω	0Ω			Part of Tuner Part # D-36.137 - Refer to Miscellaneous
L3	Fil. Choke	0Ω				Part of Tuner Part # D-36.137
L4	RF, Mixer Grid and Osc. Coils	0Ω				Part of Tuner Part # D-36.137 - Refer to Miscellaneous
L5	Fil. Choke	0Ω				Part of Tuner Part #D-36.137
L6	1st Video IF	1Ω				Includes Resistor and 2 Caps. (Part of Tuner Part #D-36.137)
L7	2nd Video IF	.5Ω	.5Ω	C-1.746		
L8	3rd Video IF	.5Ω	.5Ω	C-1.746		
L9	4th Video IF	.5Ω	.5Ω	C-1.476		
L10	Peaking	9.5Ω		C-1.522-3	19-1921	Blue Dot - 169 Microhenries
L11	Peaking	18Ω		C-1.522-1		Grey Dot - 760 Microhenries
L12	Peaking	9.5Ω		C-1.522-3	19-1921	Blue Dot - 169 Microhenries
L13	Peaking	16Ω		C-1.522-2	19-1923	Green Dot - 419 Microhenries
L14	Sound IF	2.3Ω	2.3Ω	C-1.509-1		
L15	Ratio Det. Trans.	6.5Ω	.7Ω	C-1.521		
L16	Horiz. Freq. Coil	130Ω		B-1.519		Red Dot
L17	Horiz. Lin.	30Ω		C-1.520		
L18	Horiz. Size	30Ω		C-1.520		
L19A	Line Choke	.1Ω		C-1.523		
B	Line Choke	.1Ω				Part of L19A

FUSES

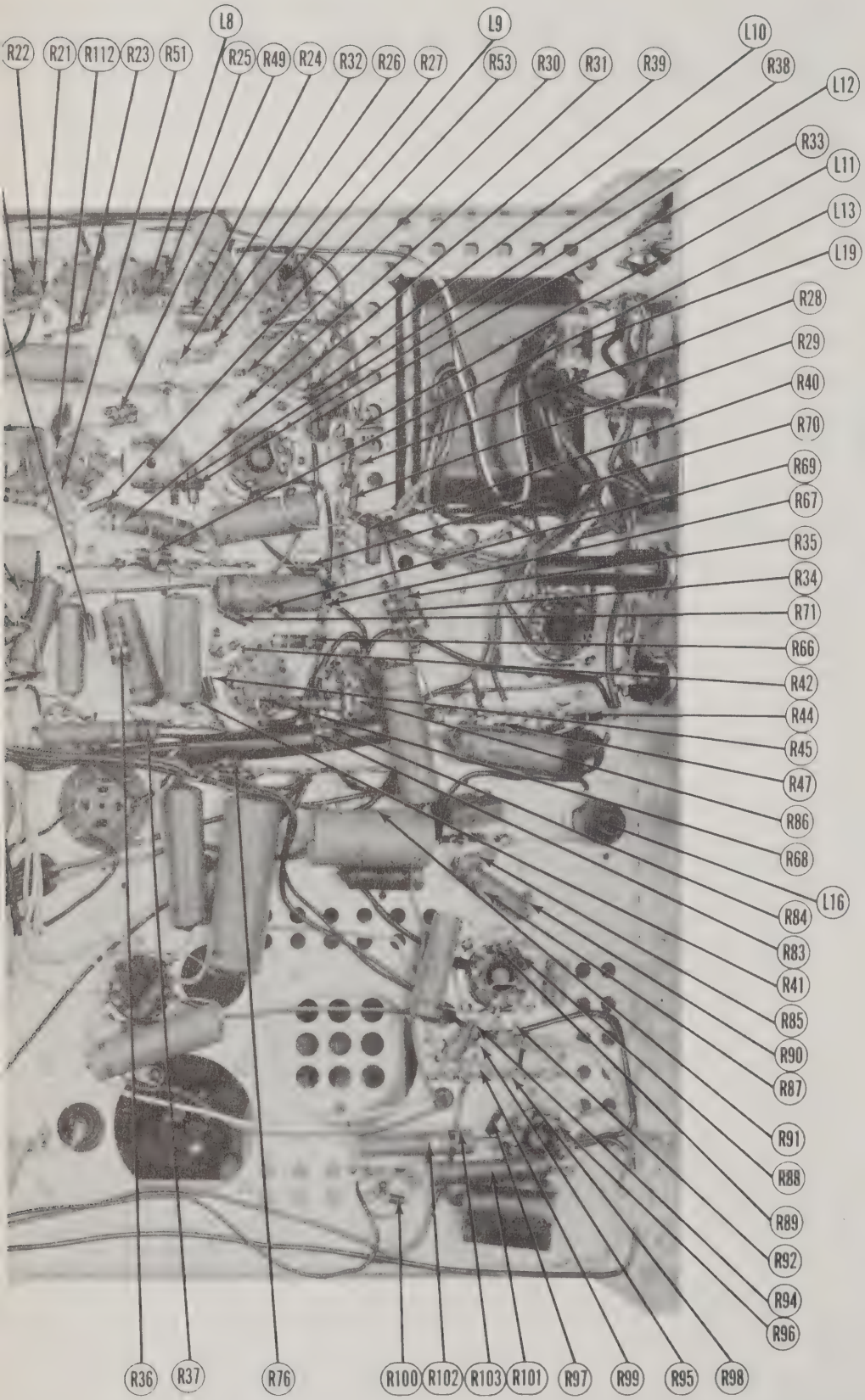
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MAJESTIC PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	3A		B36.131	312003	341001	
M2	3AG PigTail	.250A			318.250		

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
M3	RF Tuner	D-36.137	Complete with Tubes
M4A	Ion Trap	D-36.139	For 19 Inch Models
B	Ion Trap	D-36.123	For 14 and 16 Inch Models
	Antenna Coil	B-36.141-2	Channel 2
		B-36.141-3	Channel 3
		B-36.141-4	Channel 4
		B-36.141-5	Channel 5
		B-36.141-6	Channel 6
		B-36.141-7	Channel 7
		B-36.141-8	Channel 8
		B-36.141-9	Channel 9
		B-36.141-10	Channel 10
		B-36.141-11	Channel 11
		B-36.141-12	Channel 12
		B-36.141-13	Channel 13
	RF, Mixer Grid and Osc. Coils	B-36.141-102	Channel 2
		B-36.141-103	Channel 3
		B-36.141-104	Channel 4
		B-36.141-105	Channel 5
		B-36.141-106	Channel 6
		B-36.141-107	Channel 7
		B-36.141-108	Channel 8
		B-36.141-109	Channel 9
		B-36.141-110	Channel 10
		B-36.141-111	Channel 11
		B-36.141-112	Channel 12
		B-36.141-113	Channel 13
B2	Trimmer	B-4.119	Horizontal Drive (25-280MMF)
	Safety Glass	D-26.592	19 Inch Models
	Safety Glass	C-26.585	Round 16 Inch Models
	Safety Glass	C-26.600	Model 1671
	Safety Glass	C-26.583	Model 14CT4
	Mask	12.363	19 Inch Tubes
	Mask	D-12.376	Model 1671
	Mask	D-12.341	Models 1672, 1673, 1674, 1675
	Mask	D-12.378	Models 16CT4, 16CT5
	Mask	C-12.401	Model 14CT4
	Knob	B-13.201	Fine Tuning Only
	Knob	B-13.203	Contrast, Horizontal Hold
	Knob	B-13.204	Volume Only
	Knob	B-13.202	Large Round
	Plug	B-33.125	Service Adjustment

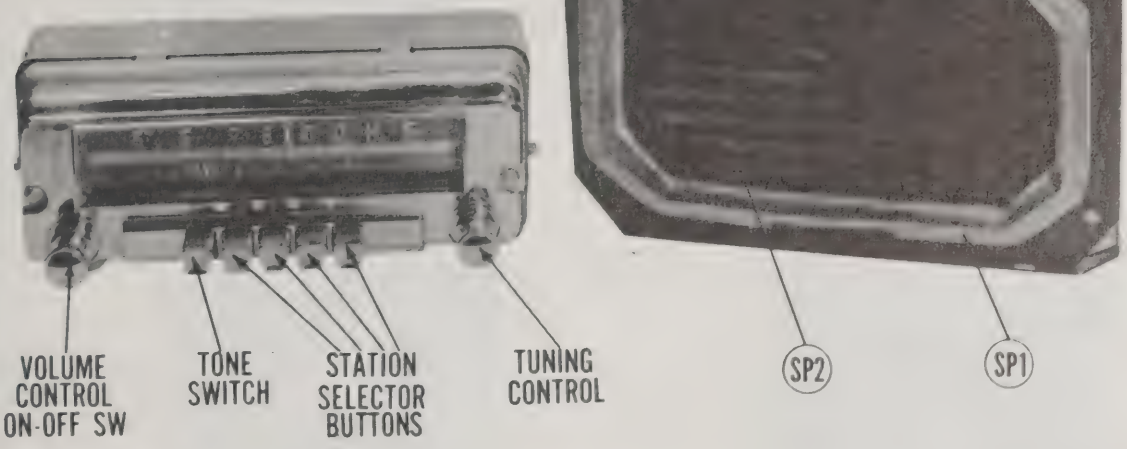


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



)R AND INDUCTOR IDENTIFICATION

MOPAR
MODEL 606



TRADE NAME	Mopar, Model 606
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 44, Illinois
TYPE SET	Battery Operated Custom-Built Automotive, Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det-AVC-AF, 6AQ5 Power Output 6X4 Rectifier
POWER SUPPLY	6Volt Storage Battery
RATING	6.3 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2) Low side to chassis	455KC (400~ Mod)	Tuning cores fully out. (high freq. end)	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Back out tuning cores until 1 3/16 ins. of core projects from end of coil form.						
3.	fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	1610KC	Tuning cores fully out.	Across voice coil.	A5, A6, A7	Adjust for maximum output.
4.	"	"	1400KC	With tuning knob, move tuning carriage "in" until tip of pointer is 1 3/4 ins. to the right of the center of the pushbutton shaft.	"	A8, A9, A10	"
5.	"	"	1610KC	Tuning cores fully out.	"	A6, A7	"
6.	"	"	1400KC	Tune for max. output.	"	A9, A10	Adjust for maximum output. Repeat step 5.

After set is installed, fully extend the antenna and tune in a weak station near 1400KC. Readjust A7 for maximum volume.

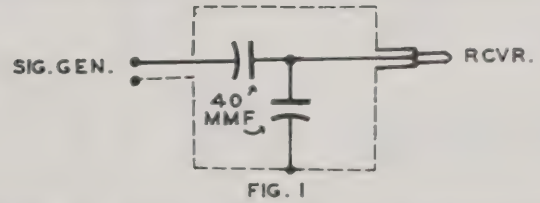


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howdrd W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

MOPAR MODEL 606

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	350	23A473015	AFH64H4A		UP335-		TVL-3620	■ Filter
B	30	300				330C			▲ Filter
C	20	25							Output Cathode
C2	90		21A591682						Fixed Trimmer
C3	.006	100	8A4529	P688-006	D6-562	PTE6D6	811-005	6TM-D6	RF Coupling
C4	.05	100	8R13514	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	.05	400	8R14791	P488-05	DF-503	PTE4S5		4TM-S5	Decoupling
C6	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	RF Coupling
C7	50	500	21R6513	1468-00005	D6-500	5W5Q5		1FM-45	Osc. Grid Cap.
C8	100						N470K-100		Fixed Trimmer
C9	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	IF Coupling
C10	.006	100	8A4529	P688-006	D6-562	PTE6D6	811-005	6TM-D6	Audio Coupling
C11	.006	400	8K71910	P688-006	D6-562	PTE6D6	811-005	6TM-D6	Tone Comp.
C12	.03	400	8R71911	P488-03		PTE6S3		6TM-S3	Audio Coupling
C13	500	500	21R6590	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	AF Amp. Grid
C14	.006	400	8K71910	P688-006	D6-562	PTE6D6	811-005	6TM-D6	Output Plate
C15	.02	1000	8R490449	P1088-02		PTE16S2		MB-S2	Buffer
C16	.5	100	8C580845	P185-5				68P20	Hash Filter
C17	.5	100	8C580845	P185-5				68P20	Hash Filter

CONTROLS

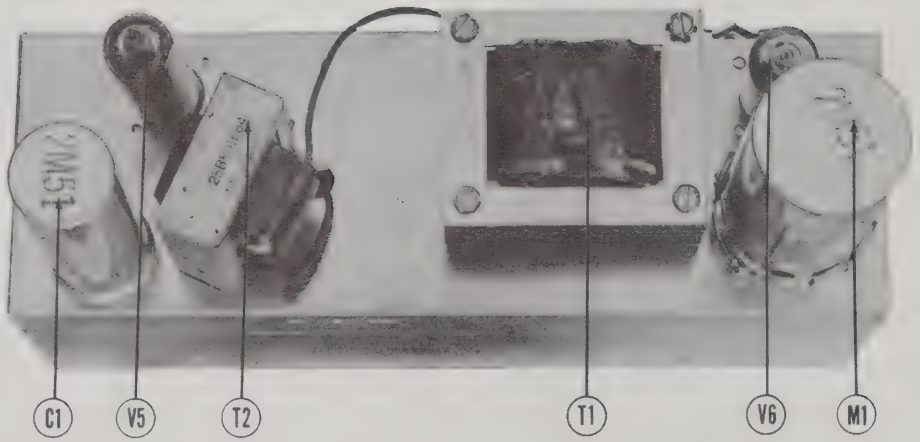
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1	500KΩ	½	18A501616				Volume Control and SW

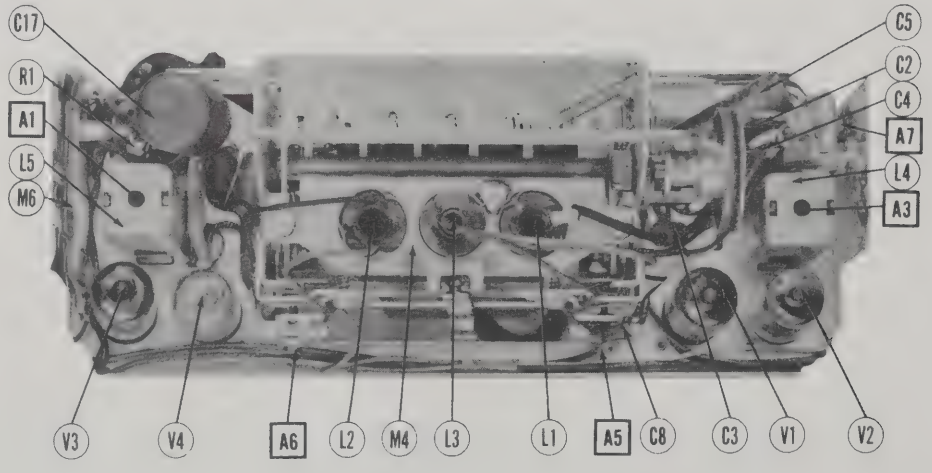
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	470KΩ	½	6R6032	BTS-470K	RF Amp. Grid
R3	390Ω	½	6R5554	BTS-390	RF Amp. Cathode
R4	22KΩ	½	6R6028	BTS-22K	Conv. Grid
R5	33KΩ	½	6R6012	BTS-33K	Osc. Grid
R6	270Ω	½		BTS-270	IF Amp. Cathode - See Note
R7	6800Ω	2	6R490349	BTB-6800	Screen Dropping
R8	1Meg	½	6R6004	BTS-1Meg	AVC Network
R9	1Meg	½	6R6004	BTS-1Meg	AVC Network
R10	47KΩ	½	6R6056	BTS-47K	Diode Filter
R11	27KΩ	½	6R6434	BTS-27K	Tone Compensation
R12	3.3Meg	½	6R2118	BTS-3.3 Meg	AF Amp. Grid
R13	6800Ω	½	6R6428	BTS-6800	AF Amp. Cathode
R14	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R15	470KΩ	½	6R6032	BTS-470K	Output Grid
R16	220Ω	1	6R6389	BTA-220	Output Cathode
R17	1000Ω	2	6R476004	BTB-1000	Filter
R18	56Ω	½	6R5614		Hash Suppressor
R19	56Ω	½	6R5614		Hash Suppressor

Note Some models use 390Ω Resistor in this application

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3V @ 4A	480VCT .050ADC			25B501684	A-3877 ①	A-3019 ①	R0-9 ①

① Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.3KΩ	3.3Ω	600Ω	.5Ω	25B501684				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No	
	FIELD	V. C. IMP.	50C502449 (or)	ST810		
SP1	PM	3.3Ω	50C501656	Model P69-V	69A2	
	CONE DIA.	V. C. DIA.				
SP2	6"X9"	9/16				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Ant. Coil	9Ω				
L2	RF Coil	13Ω				
L3	Osc. Coil	.5Ω	3.2Ω			
L4A	1st. IF	19Ω	19Ω	24B485553		
B	1st. IF			24K502819		
L5	2nd. IF	19Ω	19Ω	24K485554		
L6	Fil. Choke	0Ω		24K472535		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115∿	48B3333	A-200	5342	5342	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	14A	65K12894	9K502083	307014	155014A	

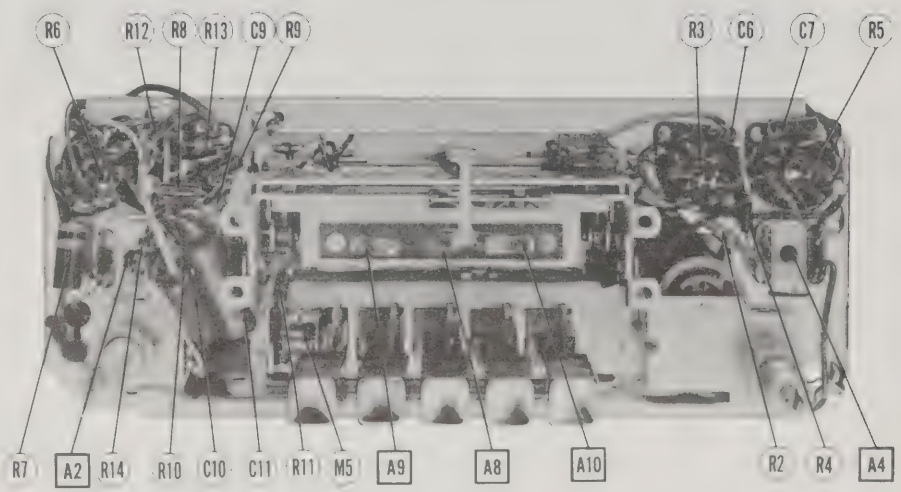
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M3	Bayonet	6-8	.25	Blue	65X10867		Type #44

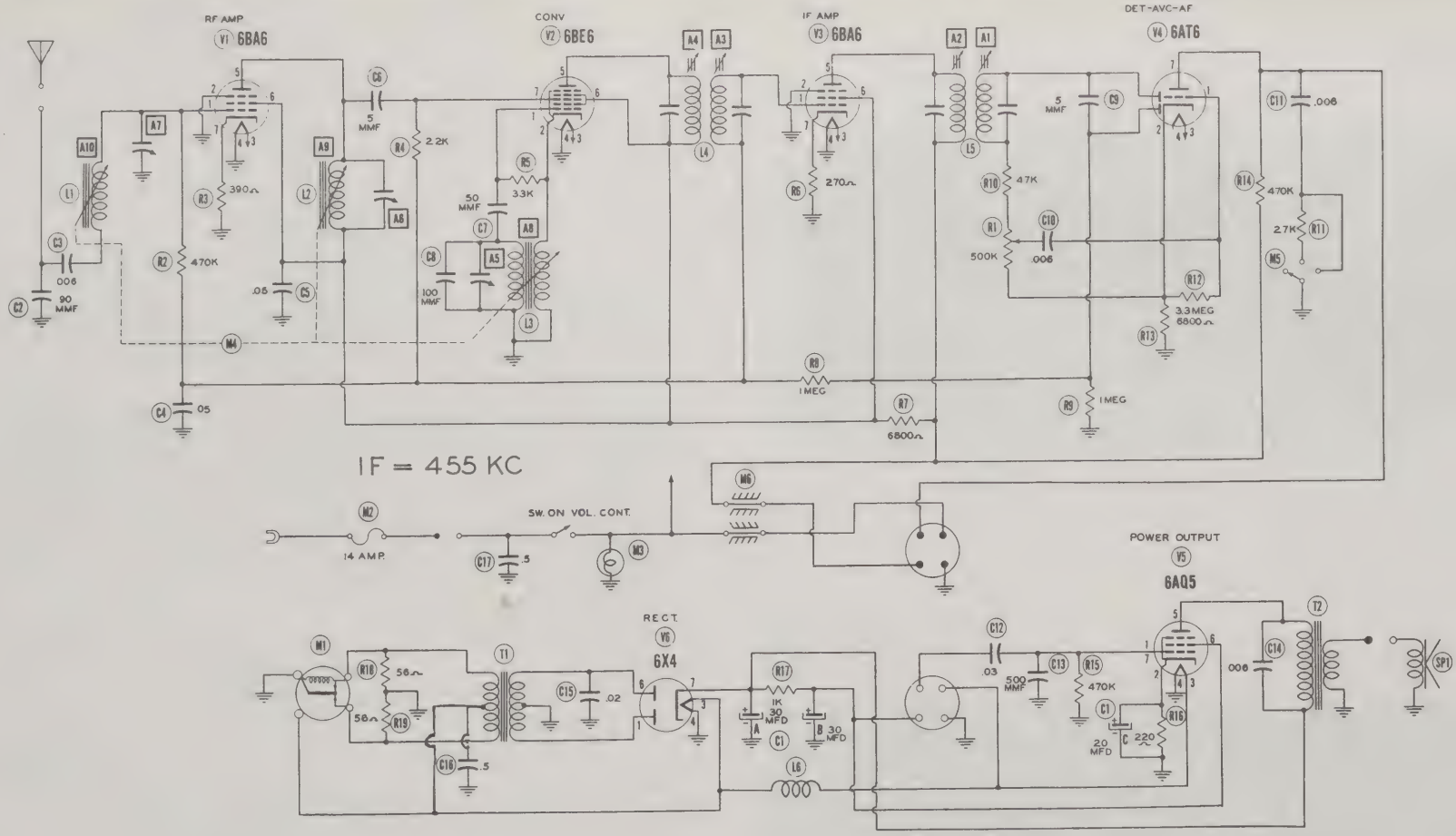
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4A	Tuner	51D501988	
B	Tuner	51D501875	
M5	Switch		Tone
M6	Spark Plate	1A501489	

CHASSIS—TOP VIEW



MOPAR MODEL 606



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.2VDC	0V	6.3VDC	0V	90VDC	90VDC	2VDC
V 2	6BE6	‡-4.6VDC	0V	6.3VDC	0V	90VDC	90VDC	-.4VDC
V 3	6BA6	-.6VDC	0V	6.3VDC	0V	190VDC	90VDC	1.6VDC
V 4	6AT6	.2VDC	2.2VDC	6.3VDC	0V	-.2VDC	.4VDC	80VDC
V 5	6AQ5	0V	8.4VDC	6.3VDC	0V	190VDC	190VDC	0V
V 6	6X4	250VAC	0V	6.3VDC	0V	0V	250VAC	215VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	.4Ω	0Ω	†7.8KΩ	†7.8KΩ	390Ω
V 2	6BE6	33KΩ	.5Ω	.4Ω	0Ω	†7.8KΩ	†7.8KΩ	2Meg
V 3	6BA6	2Meg	0Ω	.4Ω	0Ω	†1KΩ	†7.8KΩ	270Ω
V 4	6AT6	3.3Meg	6.8KΩ	.4Ω	0Ω	1Meg	550KΩ	†470KΩ
V 5	6AQ5	470KΩ	220Ω	.4Ω	0Ω	†600Ω	†1KΩ	470KΩ
V 6	6X4	250Ω	Inf.	.4Ω	0Ω	Inf.	250Ω	90KΩ

† MEASURED FROM PIN 7 OF V6

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

1 - DC Voltage measurements are at 20,000 ohms per volts; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODEL 501

MOTOROLA
MODEL 501

TRADE NAME	Motorola, Model 501
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2) Low side to chassis	455KC (400~ Mod)	Tuning cores fully out.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	fig. 1	High side thru dummy to ant. receptacle. Low side to chassis	1610KC	"	"	A5, A6, A7	Check to see that tuning cores extend 1 1/8 ins. out of cans. Adjust in order given for maximum output.
3.	"	"	1425KC	Set rear edge of carriage plate 1 1/16 ins. from coil plate shield	"	A8, A9, A10	Adjust in order given for for maximum output

After set is installed fully extend antenna and tune in a weak station near 1400KC. Retouch A7 for maximum volume.

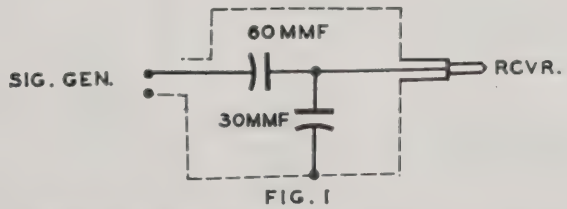


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det-AVC-AF	6AT6	6AT6	7BT	
V5	Power Amplifier	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	15	350	23A485677	AF32H4A		UP155135C		TVL-3630	■ Filter
B	10	350							▲ Filter
C	20	25							Output Cathode
C2	90		23A591682						Fixed Trimmer
C3	.006	100	8C4529	P688-006	D6-562	PTE6D6	811-005	6TM-D6	RF Coupling
C4	.05	100	8R13514	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	RF Coupling
C6	50	500	21R6513	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Osc. Grid Cap.
C7	.1	400	8R13166	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C8	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	IF Coupling
C9	.05	100	8R13514	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C10	.03	400	8R71911	P688-03	DF-203	PTE6S3		6TM-S3	Audio Coupling
C11	1000		21K478410	SI1000	D6-102	1W5D1	GP2L-001	19C1	Output Grid
C12	.01	400	8R23690	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate
C13	.02	1000	8R490449	P1088-2		PTE16S2		MB-S2	Buffer
C14	.5	100	8K17028	P185-5				68P20	Hash Filter
C15	.5	100	8K17028	P185-5				68P20	Hash Filter

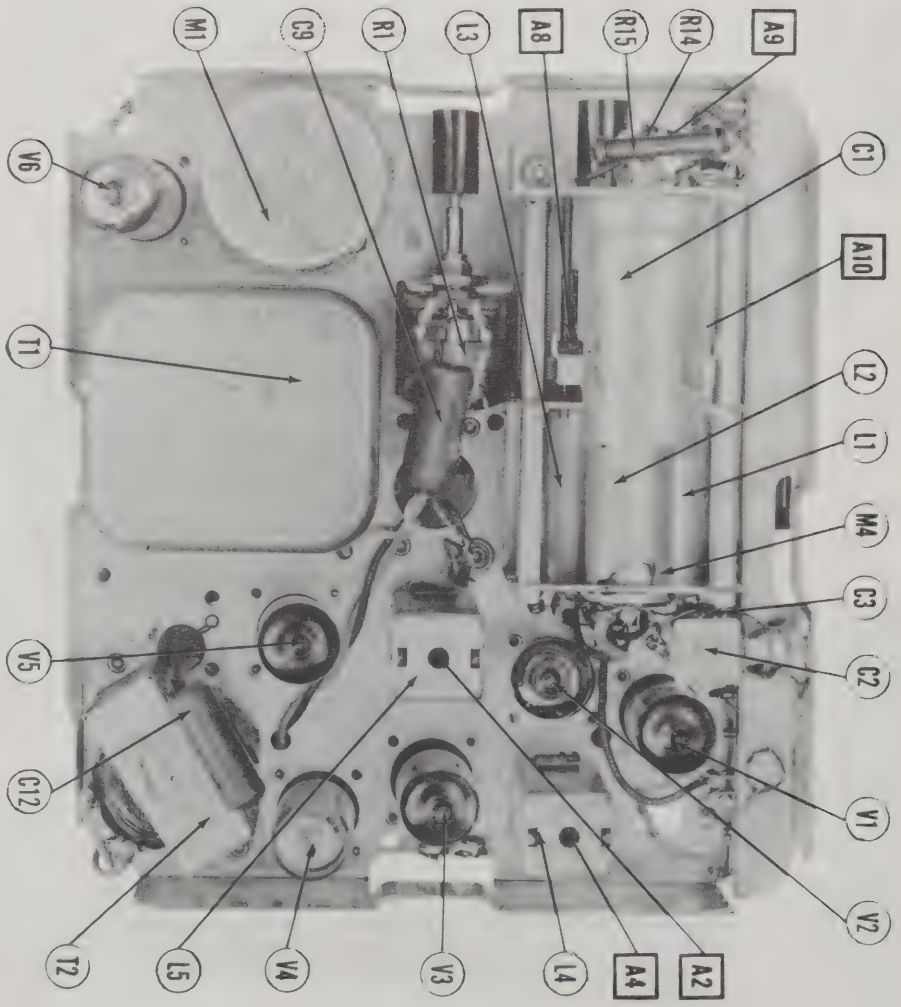
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1	500KΩ	½	18A472523				Volume Control and SW

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	470KΩ	½	6R6032	BTS-470K	RF Amp. Grid
R3	270Ω	½	6R6432	BTS-270	RF Amp. Cathode
R4	100KΩ	½	6R6075	BTS-100K	Converter Grid
R5	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R6	6800Ω	2	6R6287	BTB-6800	Decoupling
R7	470Ω	½	6R6090	BTS-470	IF Amp. Cathode
R8	47KΩ	½	6R6056	BTS-47K	Diode Filter
R9	1Meg	½	6R6004	BTS-1Meg	AVC Network
R10	1Meg	½	6R6004	BTS-1Meg	AVC Network
R11	3.3Meg	½	6R2118	BTS-3.3Meg	AF Amp. Grid
R12	2700Ω	½	6R5577	BTS-2700	AF Amp. Cathode
R13	220KΩ	½	6R6015	BTS-220K	Output Grid
R14	270Ω	1	6R6336	BTA-270	Output Cathode
R15	1000Ω	1	6R6184	BTA-1000	Filter
R16	56Ω	½	6R5614		Hahs Suppressor
R17	56Ω	½	6R5614		Hash Suppressor
R18	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 3.4A	480VCT .050ADC			25B472533	P-4062 ①	P-2972 ①	VT-3 ①

① Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.3KΩ	2.8Ω	405Ω	.62Ω	25B70171	A-3878	A-2930	RO-9 ②	② Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No	
	FIELD	V. C. IMP.		ST803		
SP1	PM	2.8Ω	50K500415	Model 525-V	52A1	
	CONE DIA.	V. C. DIA.				
SP2	5 1/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Ant. Coil	12Ω		24B71881		Specify Color Of Dot On Old Coils
L2	RF Coil	12Ω		24B71881		Specify Color Of Dot On Old Coils
L3	Osc. Coil	.8Ω	3.2Ω	24B592153		Specify Color Of Dot On Old Coils
L4	1st. IF	20Ω	20Ω	24B485553		
L5	2nd. IF	18Ω	18Ω	24B485555		
L6	Fil. Choke	.1Ω		24A472535		
L7	Hash Shoke	0Ω		24K78026		
L8	Hash Choke	0Ω		24K78026		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115∿	38B3333	A-200	5342	5342	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	9Amp.	65K16248	9K580705 ③	307009	155009A	③ Complete with fuse

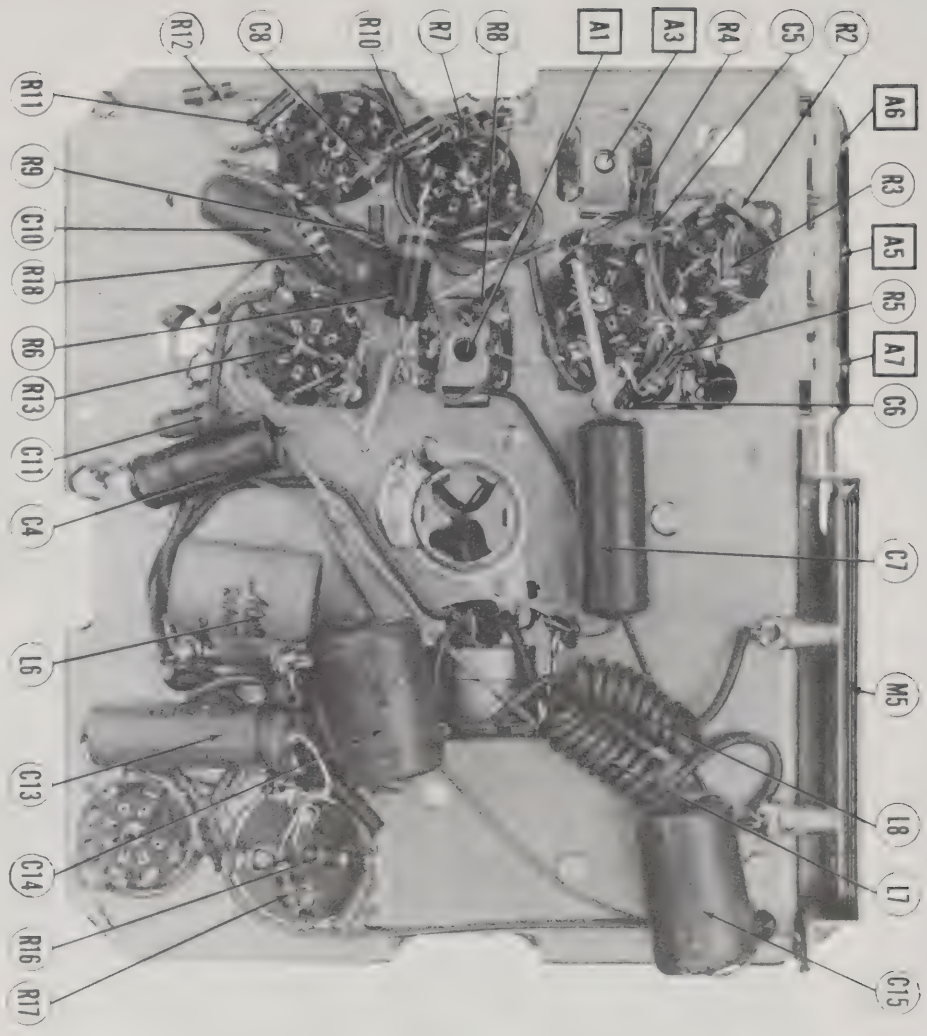
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M3	Bayonet	6-8	.2	White	65X4151		Type # 51

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuner	1X592301	
M5	Spark Plate	1X592328	

CHASSIS—BOTTOM VIEW

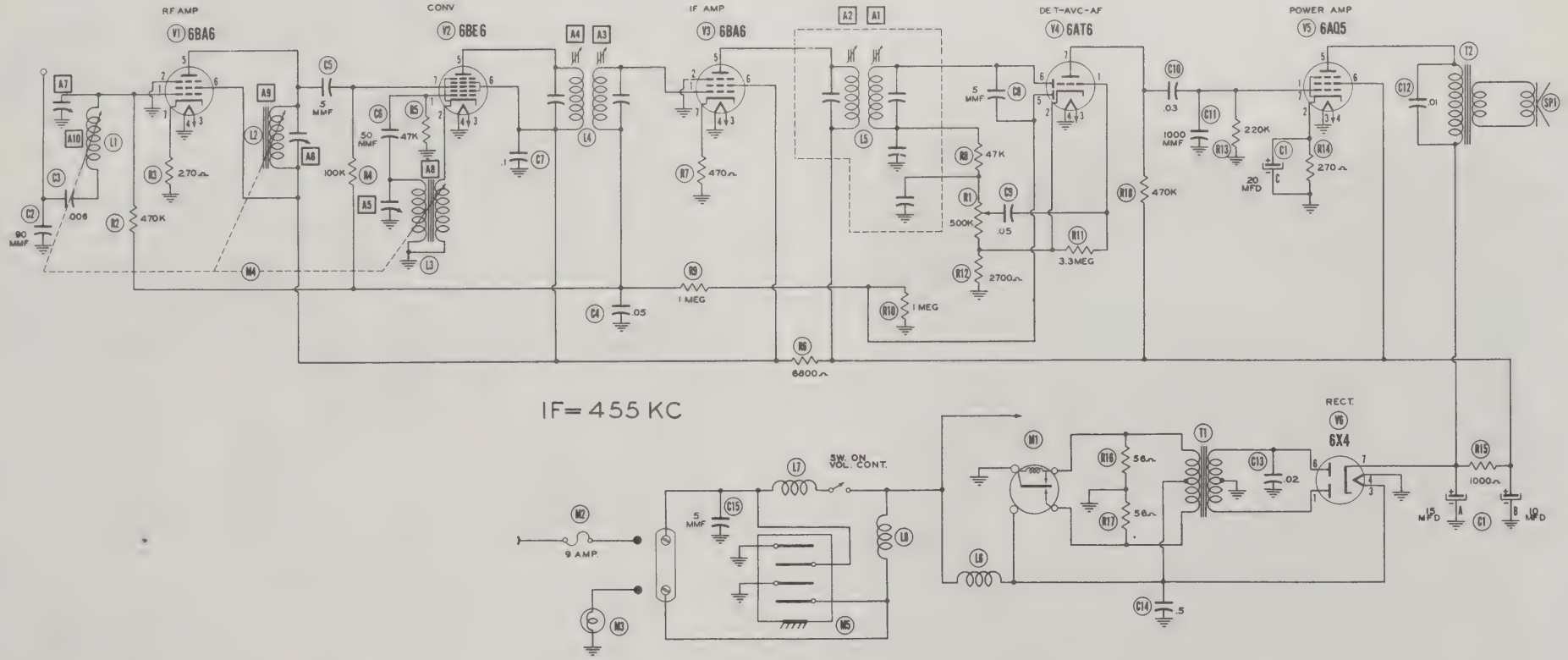


SET 133

FOLDER 10

MOTOROLA MODEL 501

MOTOROLA MODEL 501



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.1VDC	0V	6.3VDC	0V	75VDC	75VDC	1.4VDC
V 2	6BE6	§-3.6VDC	0V	6.3VDC	0V	75VDC	75VDC	-.2VDC
V 3	6BA6	- .2VDC	0V	6.3VDC	0V	190VDC	75VDC	2.7VDC
V 4	6AT6	-.1VDC	.8VDC	6.3VDC	0V	-.1VDC	.1VDC	45VDC
V 5	6AQ5	0V	9VDC	0V	6.3VDC	190VDC	190VDC	0V
V 6	6X4	250VAC	0V	6.3VDC	0V	0V	250VAC	310VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	.3Ω	0Ω	†7.8KΩ	†7.8KΩ	270Ω
V 2	6BE6	47KΩ	.8Ω	.3Ω	0Ω	†7.8KΩ	†7.8KΩ	2.1Meg
V 3	6BA6	2Meg	0Ω	.3Ω	0Ω	†1KΩ	†7.8KΩ	470Ω
V 4	6AT6	3.3Meg	2.7KΩ	.3Ω	0Ω	1Meg	550KΩ	†470KΩ
V 5	6AQ5	220KΩ	270Ω	0Ω	.3Ω	†405Ω	†1KΩ	220KΩ
V 6	6X4	400Ω	Inf.	.3Ω	0Ω	Inf.	400Ω	150KΩ

† MEASURED FROM PIN 7 OF V6

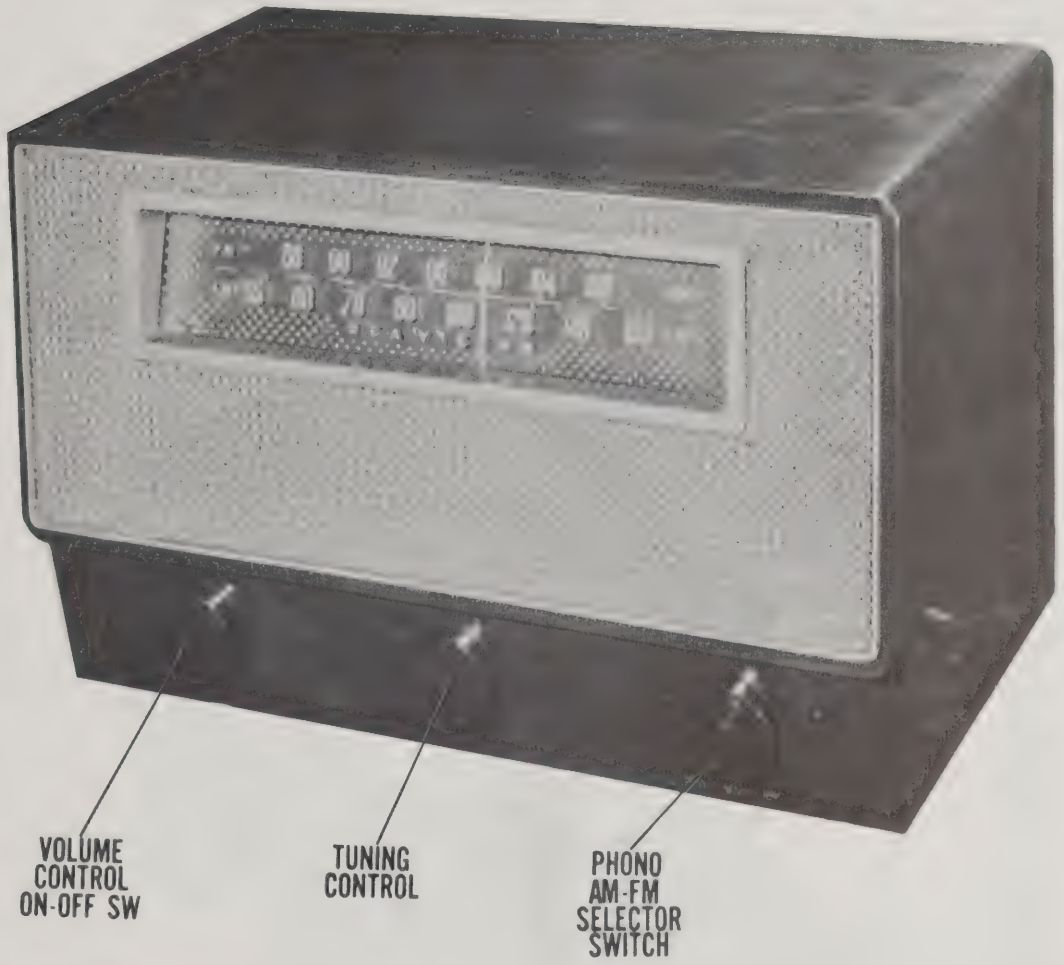
A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

133-10

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODEL X711 (Ch. RC-1070A)

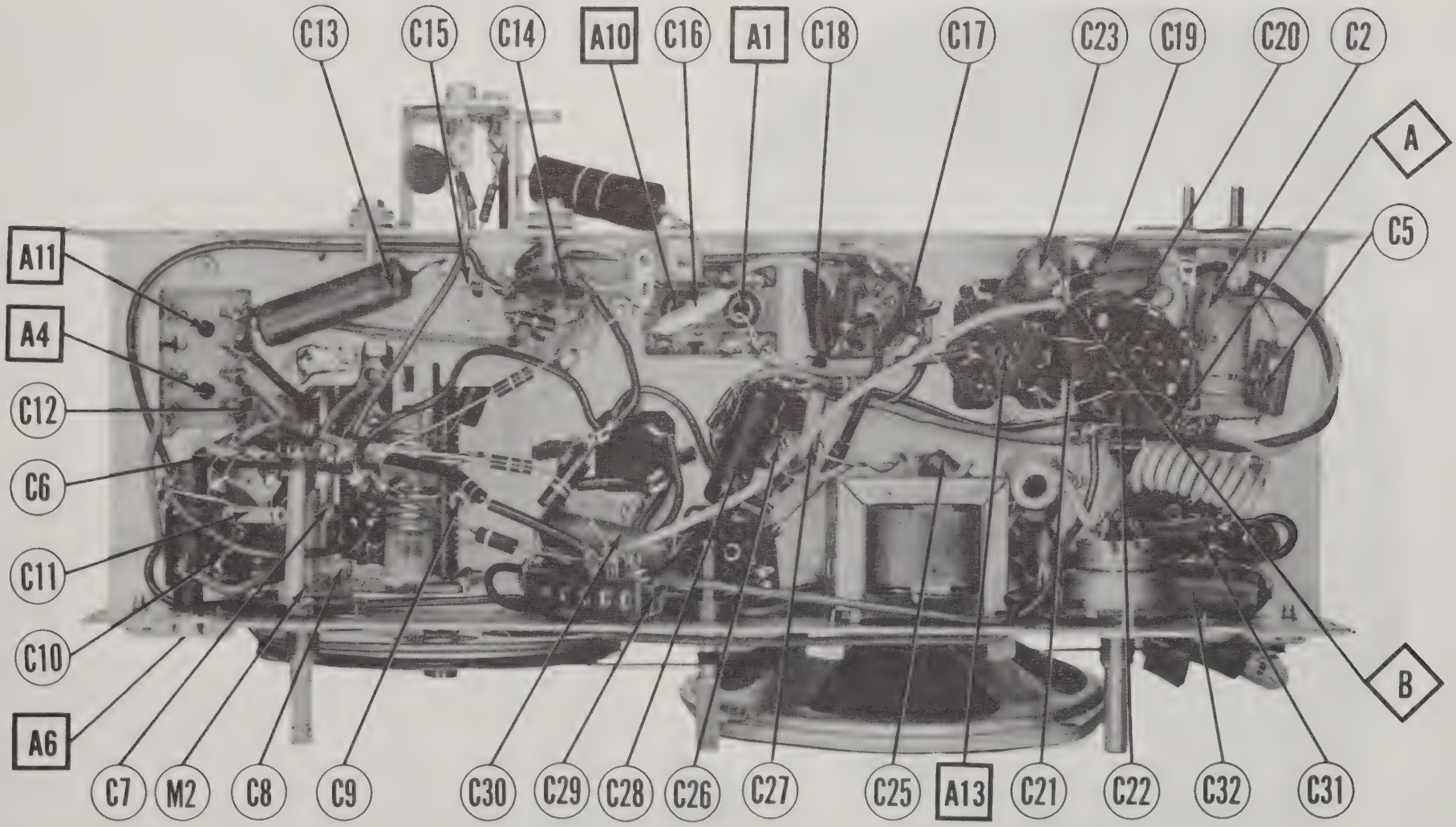


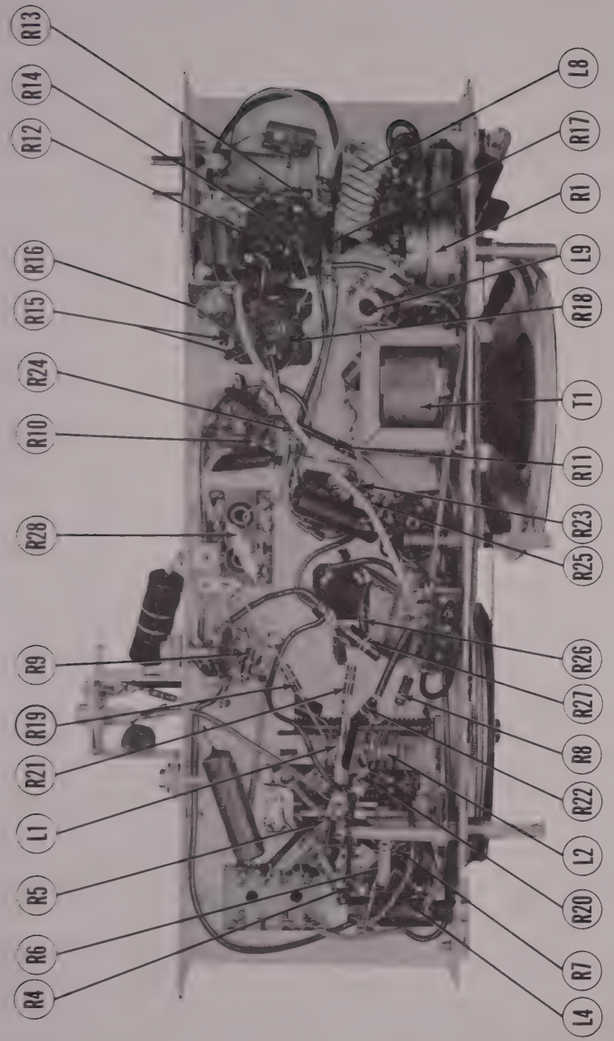
RCA VICTOR
MODEL X711 (Ch. RC-1070A)

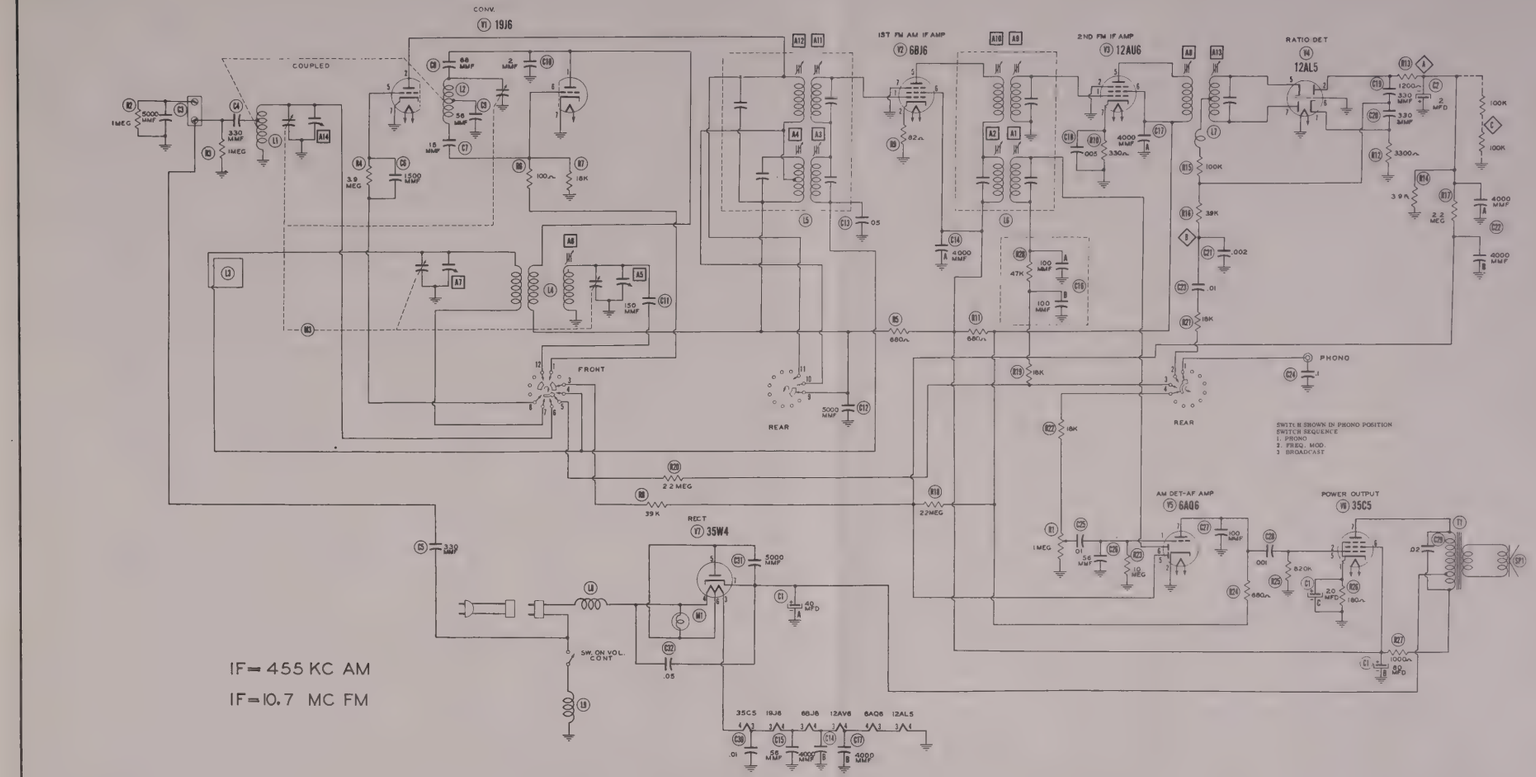
TRADE NAME	RCA Victor, Model X711 (Ch. RC-1070A)	
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey	
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna	
TUBES (SEVEN)	Types 19J6 Converter, 6BJ6 1st. IF Amp., 12AU6 2nd. FM IF Amp., 12AL5 Ratio Det., 6AQ6 AM DET.-AVC-AF, 35C5 Power Output, 35W4 Rectifier	
POWER SUPPLY	110-120 Volts AC-DC	RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC	FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C13
C15
C14
A10
C16
A1
C18
C17
C23
C19
C20
C2
A
A11
C5
A4
C12
C6
C11
C10
A6
B
C7
M2
C8
C9
C30
C29
C28
C26
C27
C25
A13
C21
C22
C32
C31





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	19J6	8 115VDC ± 30VDC	90VDC	55VAC	28VAC	9 -.7VDC 4 -1.2VDC	11 -1.7VDC 14 -1.5 .2VDC	0V
V 2	6BJ6	-.1VDC	-.9VDC	28VAC	30VAC	90VDC	99VDC	0V
V 3	12AU6	0V	0V	30VAC	28VAC	90VDC	99VDC	1.3VDC
V 4	12AL5	.1VDC	5 -.9VDC	12VAC	0V	1 -.9VDC	0V	2 -.9VDC
V 5	6AQ6	-.3VDC	0V	12VAC	12VAC	-.1VDC	-.2VDC	125VDC
V 6	35C5	6.3VDC	0V	55VAC	82VAC	0V	99VDC	122VDC
V 7	35W4	117VAC	0V	82VAC	117VAC	122VAC	122VAC	117VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	19J6	11.7KΩ	11.7KΩ	55Ω	55Ω	2 3.3Meg 4 3.3Meg	38KΩ	0Ω
V 2	6BJ6	2 3.3Meg 4 3.3Meg	33Ω	33Ω	33Ω	11KΩ	9.1KΩ	0Ω
V 3	12AU6	2Ω	0Ω	327Ω	20Ω	9 1.7KΩ	11.7KΩ	330Ω
V 4	12AL5	9.3KΩ	600Ω	12Ω	9Ω	Inf.	9Ω	1Ω
V 5	6AQ6	10Meg.	9Ω	12Ω	30Ω	8 .5Meg	8 .5Meg	1600KΩ
V 6	35C5	1890	830KΩ	56Ω	90Ω	890KΩ	11KΩ	124KΩ
V 7	35W4	120Ω	Inf.	90Ω	120Ω	12Ω	12Ω	60KΩ

‡ TAKEN IN FM POSITION
+ TAKEN IN AM POSITION
† MEASURED FROM PIN 7 OF V7

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set the pointer 2 15/16 ins. to the right of the extreme left hand edge of the left hand dial cord pully support bracket. When set is in cabinet the pointer should be even with the left hand edge of the first 5 of the 55 calibration.
Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Alternately load the AM IF transformer windings by connecting a 10KΩ resistor across the primary winding of the transformer while the secondary of the same transformer is being aligned. While adjusting the primary winding, move the 10KΩ resistor to across the secondary. Remove the resistor after alignment is completed.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator or rear AM section of tuning gang. Low side to chassis	455KC (400~ Mod.)	AM (CW)	Tuning gang fully closed.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. Use alternate loading as outlined in instructions above.
2.		Loop	1630KC	"	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	[illegible]	"	Set pointer 2 15/16ins. to right of left hand edge of left pully support bracket.	"	A6	"
4.		Loop	1400KC	"	Tune for max. output.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2, 3, & 4 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Alternately load the FM IF transformer winding as outlined under AM alignment using a 680Ω resistor instead of the 10KΩ resistor.
Connect two matched 100KΩ (± 1%) resistors in series from Point Ⓐ to chassis. The junction of these two resistors is alignment Point Ⓑ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
E.	.01MFD	High side to pin 1 (Grid) of 6BJ6 (V2) Low side to chassis	10.7MC (unmod.)	FM (center)	Tuning gang fully closed.	DC probe to point Ⓑ Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
6.	"	High side to pin 5 (Grid) of 1926 (V1). Low side to chassis	"	"	"	"	A11, A12	"
F.	"	"	"	"	"	DC probe to point Ⓒ Common to point Ⓐ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BJ6 (V2). Low side to chassis.	10.7MC (450KC SWP)	FM (center)	Point of non-interference.	Vert. Amp to point Ⓐ Low side to chassis.	A8, A9, A10	Disconnect stabilizor capacitor C2. Adjust for maximum amplitude and symmetry as per fig.1
6.	"	High side to pin 5 (Grid) of 1926 (V1). Low side to chassis.	"	"	"	"	A11, A12	"
F.	"	"	"	"	"	Vert. Amp to point Ⓒ Low side to chassis.	A13	Reconnect capacitor C2. Adjust A13 so 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω [illegible] resistor	[illegible] thru 300Ω to FM ant. terminal 2. (remove line ant) Low side to terminal 1.	104MC (unmod.)	FM	Set pointer 7 7/16ins. to the right of the left hand edge of the left hand dial cord pulley support.	DC probe to point Ⓐ Common to chassis.	A14	Adjust for maximum deflection.
H.	"	"	90MC	"	Tune for max. deflection.	"	L1	Rock tuning gang while expanding or compressing coil turns for maximum deflection.

FIG. 1

FIG. 2

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1926	1926	7BP	
V2	1st FM-AM IF Amp.	6BJ6	6BJ6	7CM	
V3	2nd FM IF Amp.	12AU6	12AU6	7BK	
V4	Ratio Detector	12AL5	12AL5	6BT	
V5	AM Det.-AVC-AF	6AQ6	6AQ6	6CV	
V6	Power Output	35C5	35C5	7CV	
V7	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

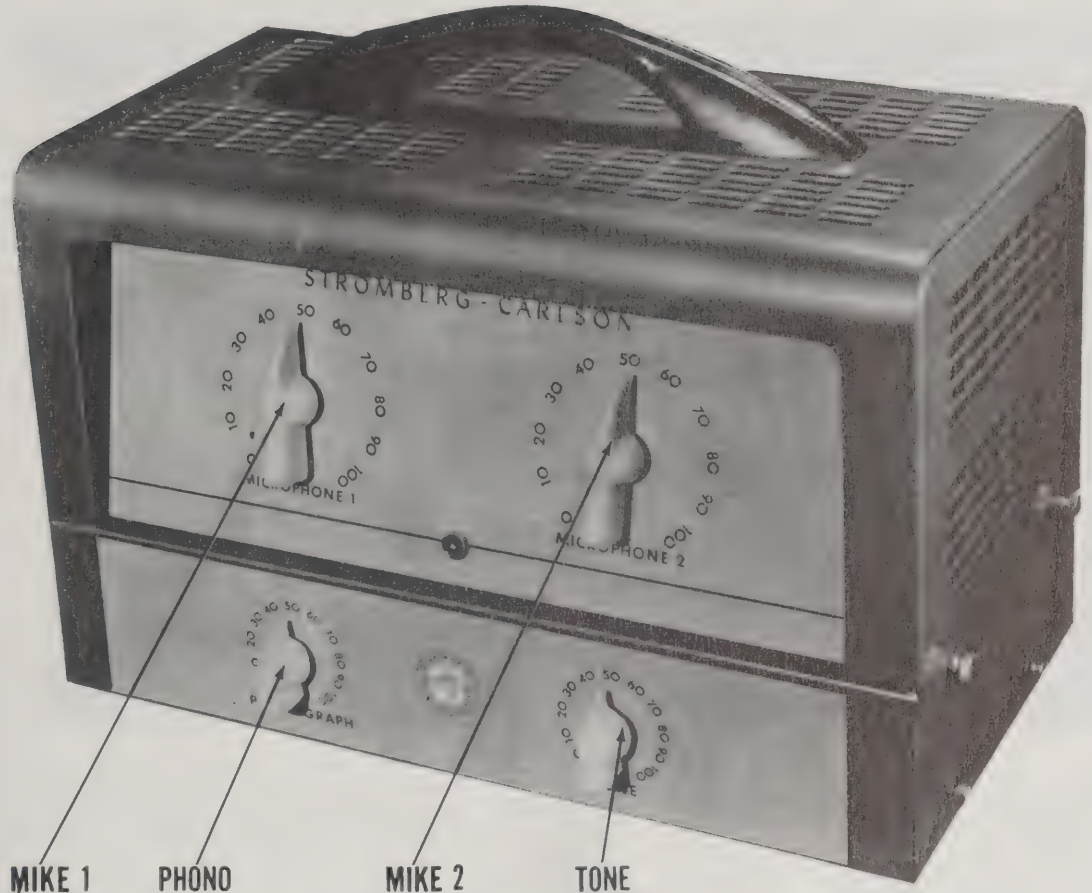
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
				AF10100DDA		UP4415C		TVL-4425	■ Filter ● Filter ▲ Output Cathode
C1A	40	150	73975						
B	80	150							
C	20	25							
C2	2	50	73747	E2SF3		BBB2-50T			
C3	5000		73473	BPD-005	DD-502	DD5D5	811-005	TVA-1501	Stabilizing Cap
C4	5000		73473	BPD-005	DD-502	DD5D5	811-005	29C1	Ant. Isolation
C5	330	500	39640	SI330	D6-331	5WST3	GP2K-330	19C14	RF Coupling
C6	1500		71501	SII1500	D6-152	1WSD15	GP2L-0015	29C8	Ant. Coupling
C7	15		39044	SI15	D6-150	5WSQ7	GP1K-15	19C6	RF Coupling
C8	68		75612	SI68	D6-680		GP1K-68	19C10	Osc. Feedback
C9	56		73887	SI56	D6-560		GP1K-56		Osc. Padder
C10	2		73747		TCZ-2 2				Fixed Trimmer
C11	150		44302	SII50	D6-151	5WST15	GP2K-150	19C12	Osc. Grid Cap
C12	5000		73473	BPD-005	DD-502	1DSD5	811-005	29C1	Decoupling
C13	.05	400	73553	P468-05	DF-503	PTE485	823-2X004	38C3	AVC Filter
C14A	4000		74009	BPD-2X004	DD-2-503	DS5D4			1st IF Pri.
B	4000					DS5D4			1st IF Sec.
C15	56		73499	SI56	D6-560	5WSQ5	GP1K-56	19C28	1st IF Fil.
C16A	100		74011	SI100	* PC-50	5WST1	GP1K-100	19C11	Diode RF Filter
B	100			SII100		5WST1	GP1K-100	19C11	Diode RF Filter
C17A	4000		74009	BPD-2X004	DD-2-503	DS5D4	823-2X004	38C3	2nd IF Decoupling
B	4000					DS5D4			2nd IF Pri.
C18	.005	100	71828	P868-005	D6-502	PTE5D5	811-005	67M-D5	2nd IF Cathode
C19	330	500	39640	SI330	D6-331	5WST3	GP2K-330	19C14	Diode Load Cap
C20	330	500	39640	SI330	D6-331	5WST3	GP2K-330	19C14	Diode Load Cap
C21	.002	600	73750	P868-002	D6-202	PTE5D2	GP2M-002	67M-D2	De-emphasis
C22A	4000		74009	BPD-2X004	DD-2-502	DS5D4	823-2X004	38C3	AVC Filter
B	4000					DS5D4			AVC Filter
C23	.01	200	71923	P468-01	D6-103	PTE4S1	821-01	47M-S1	Audio Coupling
C24	.1	400	73551	P468-1	DF-104	PTE4P1		47M-P1	Phono Isolation
C25	.01	400	71923	P468-01	D6-103	PTE4S1	821-01	47M-S1	Audio Coupling
C26	56		73499		D6-560	5WSQ5	GP1K-56	19C28	AF Amp. Plate
C27	100	500	39639	P468-001	D6-101	5WST1	GP1K-100	19C11	AF Amp. Plate
C28	.001	600	73188	P868-001	D6-102	PTE6D1	GP2L-001	67M-D1	Audio Coupling
C29	.02	400	74010	P468-02	DF-203	PTE4S2		47M-S2	Output Plate
C30	.01	200	71923	P468-01	D6-103	PTE4S1	821-01	47M-S1	Output Fil. Bypass
C31	5000	400	73473	BPD-005	DD-502	1DSD5	811-005	29C1	Rect. Plate
C32	.05	400	73553	P468-05	DF-503	PTE485		47M-S5	Line Filter

* Items C16A, C16B and R28 are combined into one unit.
† When either item C19 or C20 are replaced, replace with capacitor of equal value.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	1/2	38406	Q13-137	AM-63-Z	B-70-8	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A Per Instructions
C	Switch		Not req.	76-1	SW-A	Not req.	Attach to R1A Per Instructions

STROMBERG-CARLSON
MODEL AU-32



STROMBERG-CARLSON
MODEL AU-32

TRADE NAME	Stromberg-Carlson, Model AU-32
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester, New York
TYPE SET	AC Operated Audio Amplifier
SUBES (SIX)	Types 6SC7 Mic 1 Amp., 6J5 or 6C5 AF Amp., 6SC7 Driver - Phase Inverter, (2) 6L6G Power Output, 5Y3GT Rectifier
POWER SUPPLY	105-125 Volts AC RATING .85 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

STROMBERG-CARLSON
MODEL AU-32

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROM-CARL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Mic. 1 Amplifier	35753	6SC7	8S	
V2A	AF Amplifier	41132	6J5	6Q	
B	AF Amplifier	46713	6C5	6Q	
V3	Driver-Phase Inv.	35753	6SC7	8S	
V4	Power Output	35756	6L6G	7AC	
V5	Power Output	35756	6L6G	7AC	
V6	Rectifier	35836	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROM-CARL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	35590	AFH88J26B		UP4445C		TVL-4747	▪ Filter
B	30	350				BR505			■ Filter
C	50	50							Output Cathode
C2A	10	350	34698	AF222J5A		UP11135C		TVL-4723	▪ Decoupling
B	10	300							■ Decoupling
C	10	250							▲ Decoupling
C3	50	25	41157	PRS25/50		BR502A		TVA-1206	Mic. Pre-Amp. Cathode
C4	50	25	41157	PRS25/50		BR502A		TVA-1206	Mixer Cathode
C5	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C6	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C7	500	500	27009	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Tone Comp.
C8	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C9	.01	600	25485	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Tone Comp.
C10	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C11	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C12	.1	400	25483	P488-1	DF-104	PTE4P1		4TM-P1	Filament Bypass

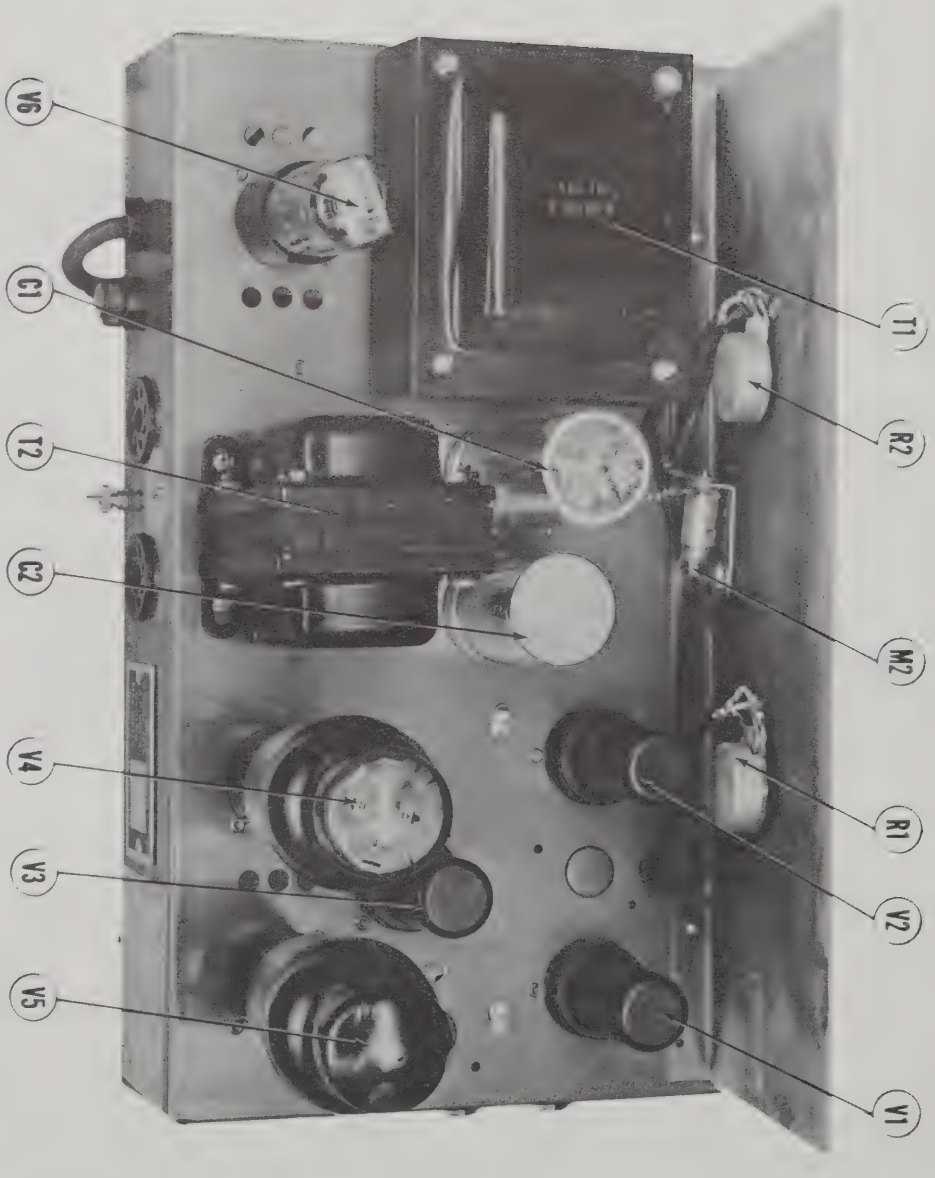
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROM-CAR PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	46313	Q13-137	AM-63-Z	B-70	Mike 1 Volume Control
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R1A per instructions
R2A	1Meg	½	46313	Q13-137	AM-63-Z	B-70	Mike 2 Volume Control
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R2A per instructions
R3A	1Meg	½	46313	Q13-137	AM-63-Z	B-70	Phono Volume Control
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R3A per instructions
R4A	1Meg	½	39838	Q13-137	AM-63-Z	B-70-S	Tone Control
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R4A per instructions
C	Switch		Not Req	76-1	SW-A	Not Req	Attach to R4A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROM-CARL PART No.	IRC PART No.	IDENTIFICATION CODES
R5	1Meg	½	28191	BTS-1Meg	Mike 1 Pre-Amp. Grid
R6	330KΩ	½	28185	BTS-330K	Mike 1 Pre-Amp. Plate
R7	1Meg	½	28191	BTS-1Meg	Mike 2 Pre-Amp. Grid
R8	330KΩ	½	28185	BTS-330K	Mike 2 Pre-Amp. Plate
R9	1500Ω	½	28160	BTS-1500	Mike Pre-Amp. Cathode
R10	2200Ω	1	30616	BTA-2200	Mike Pre-Amp. Plate Decoupling
R11	47KΩ	2	70056	BTB-47K	Voltage Divider
R12	1Meg	½	28191	BTS-1Meg	Isolation
R13	1Meg	½	28191	BTS-1Meg	Isolation
R14	1Meg	½	28191	BTS-1Meg	Isolation
R15	2200Ω	½	28162	BTS-2200	AF Amp. Cathode
R16	100KΩ	½	28006	BTS-100K	AF Amp. Plate
R17	100KΩ	½	28006	BTS-100K	AF Amp. Plate
R18	1Meg	½	28191	BTS-1Meg	Driver Grid
R19	330KΩ	½	28185	BTS-330K	Driver Plate
R20	1500Ω	½	28160	BTS-1500	Driver - Phase Inv. Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Strom-Carl. PART No.	IRC PART No.	
R21	10KΩ	1/2	28170	BTS-10K	Phase Inv. Grid
R22	330KΩ	1/2	28185	BTS-330K	Phase Inv. Plate
R23	330KΩ	1/2	28185	BTS-330K	Output Grid
R24	330KΩ	1/2	28185	BTS-330K	Output Grid
R25	200Ω	10	46357	1 3/4A-200	Output Cathode - Wire Wound
R26	1Meg	1/2	28191	BTS-1Meg	Feedback
R27	3500Ω	10	46360	1 3/4A-3500	Filter - Wire Wound
R28	10KΩ	1	30417	BTA-10K	Filter
R29	10KΩ	1	30417	BTA-10K	Decoupling

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STROM-CARL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .85A	680VCT .120ADC	5VAC @ 2A	6.3 VAC @ 2.8A	46316	PM8411 ②		PH120B

② Add H. V. Dropping Resistor if necessary

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		STROM-CAR PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI	SEC.	PRI.	SEC.					
T2	4.5K CT	500Ω Taps 4Ω, 8Ω & 15Ω	290Ω CT	16Ω Taps .42Ω .6Ω & .8Ω	46317	A-3800 ①		PC0-80	① Drill new mounting hole

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			STROMBERG-CARLSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	2Amp.	23150	46702	312002	342001	

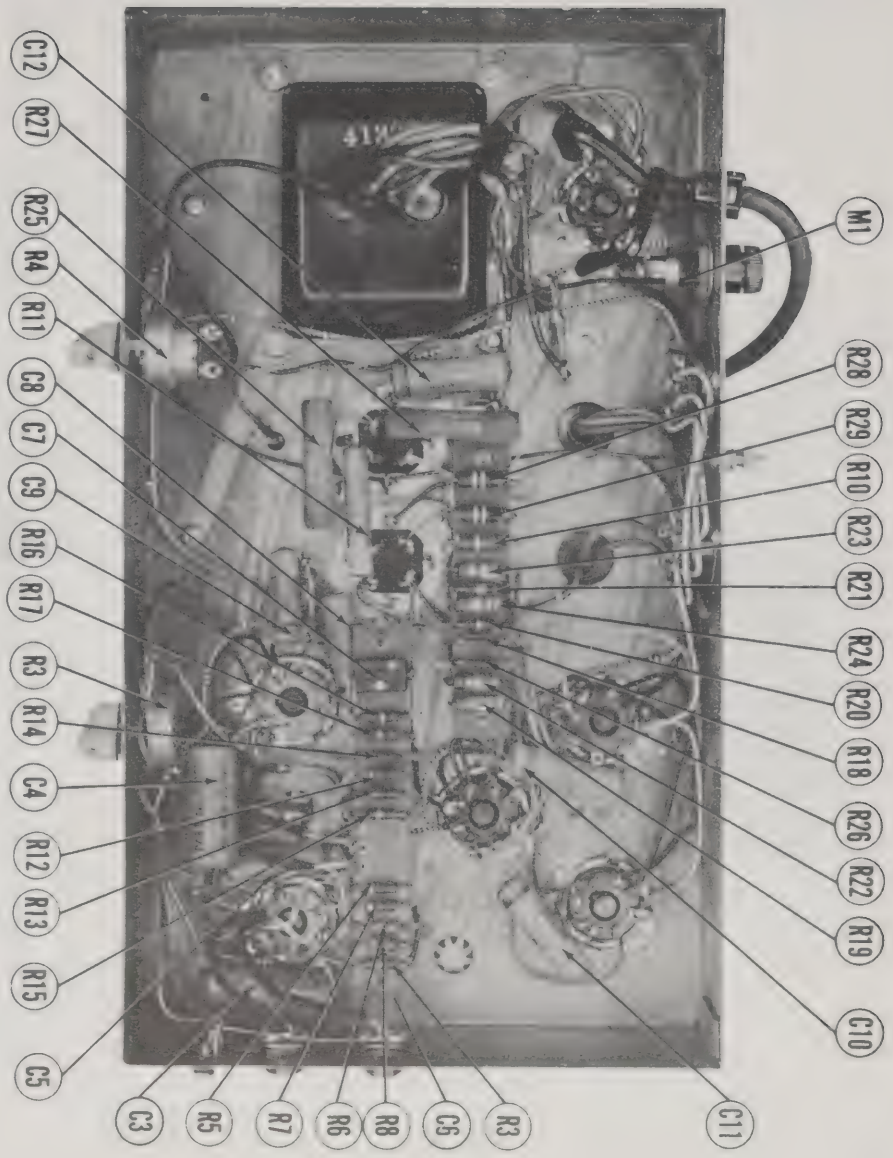
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					STROM-CARL PART No.		
M2	Bayonet	7.5	.2	White	28025		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	STROM-CARLSON PART No.	NOTES
	Knob	32667	Large
	Knob	39840	Small

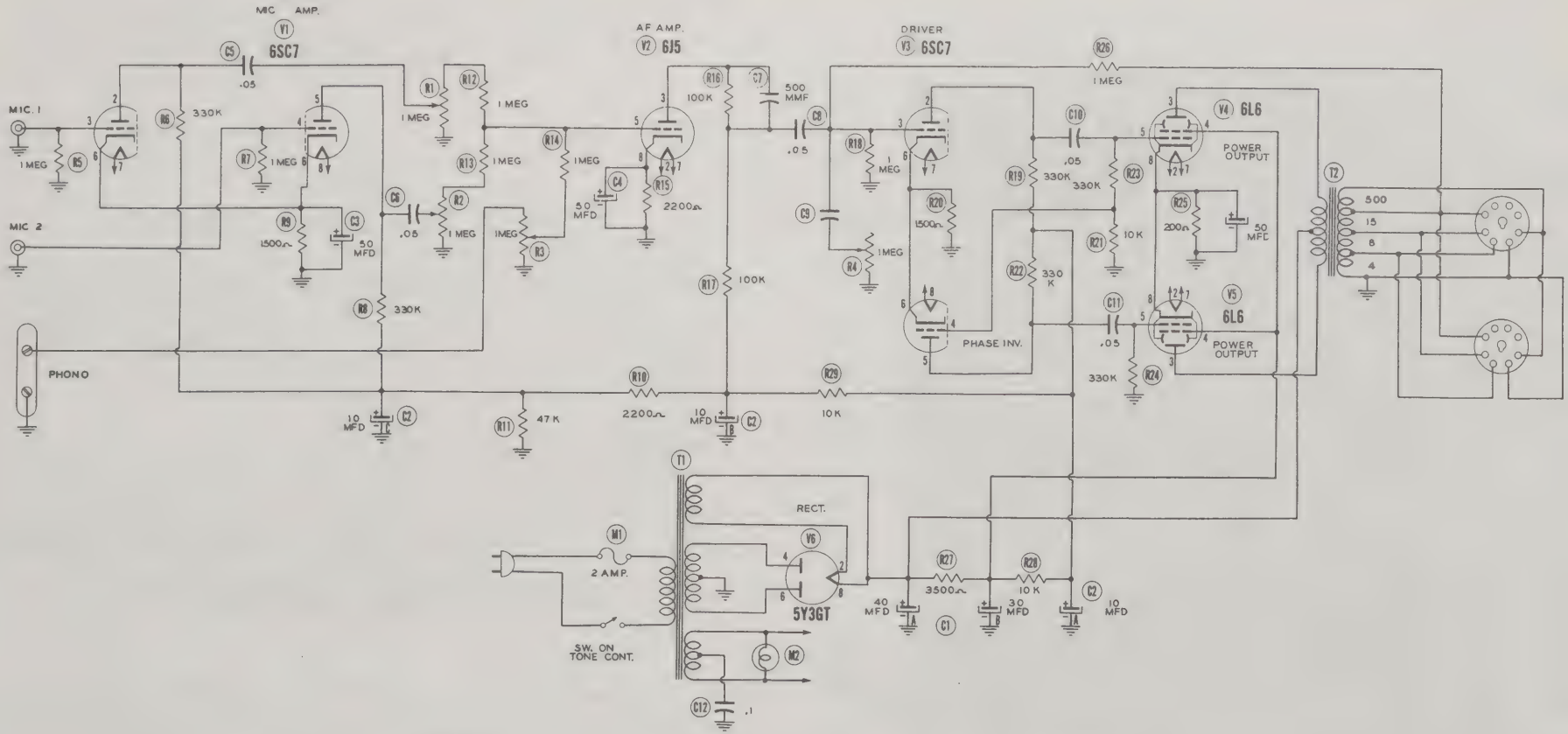
CHASSIS—BOTTOM VIEW



SET 133 FOLDER 12

STROMBERG-CARLSON MODEL AU-32

STROMBERG-CARLSON MODEL AU-32



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0V	60VDC	0V	0V	60VDC	.9VDC	¶	¶
V 2	6J5	0V	¶	35VDC	0V	0V	0V	¶	1.6VDC
V 3	6SC7	0V	90VDC	0V	0V	90VDC	1.2VDC	¶	¶
V 4	6L6G	0V	¶	320VDC	300VDC	0V	0V	¶	20VDC
V 5	6L6G	0V	¶	320VDC	300VDC	0V	0V	¶	20VDC
V 6	5Y3GT	0V	320VDC	0V	320VAC	0V	320VDC	0V	320VDC

¶ 6.3VAC MEASURED ACROSS FILAMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0Ω	†345KΩ	1Meg	1Meg	†345KΩ	1.5KΩ	Inf.	Inf.
V 2	6J5	0Ω	Inf.	†210KΩ	Inf.	500KΩ	Inf.	Inf.	2.2KΩ
V 3	6SC7	0Ω	†340KΩ	500KΩ	10KΩ	†340KΩ	1.5KΩ	Inf.	Inf.
V 4	6L6G	0Ω	Inf.	†145Ω	†3.5KΩ	340KΩ	Inf.	Inf.	200Ω
V 5	6L6G	0Ω	Inf.	†145Ω	†3.5KΩ	330KΩ	Inf.	Inf.	200Ω
V 6	5Y3GT	Inf.	30KΩ	Inf.	85Ω	Inf.	85Ω	Inf.	30KΩ

† MEASURED FROM PIN 8 OF V6

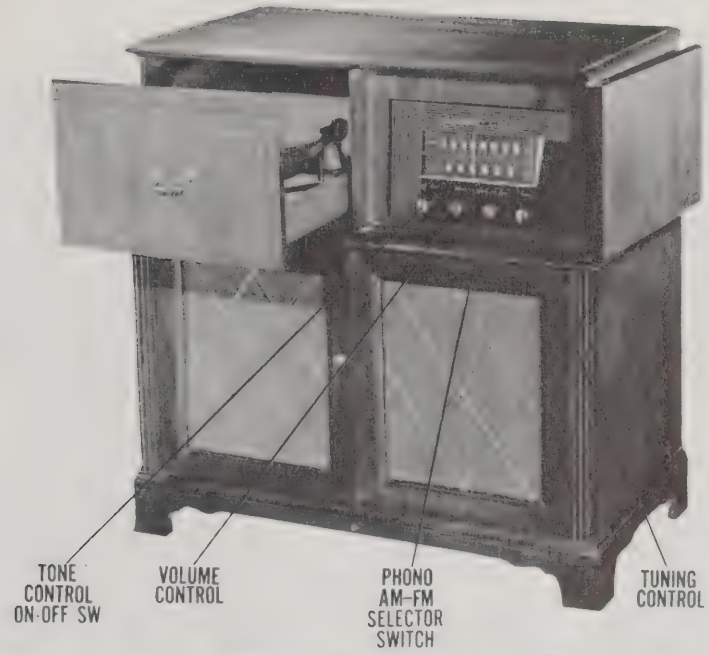
A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1951

133-12

1 - DC Voltage measurements are at 20, 000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings..
6 - All controls at minimum, proper output load converted.

STROMBERG-CARLSON
MODEL 1507

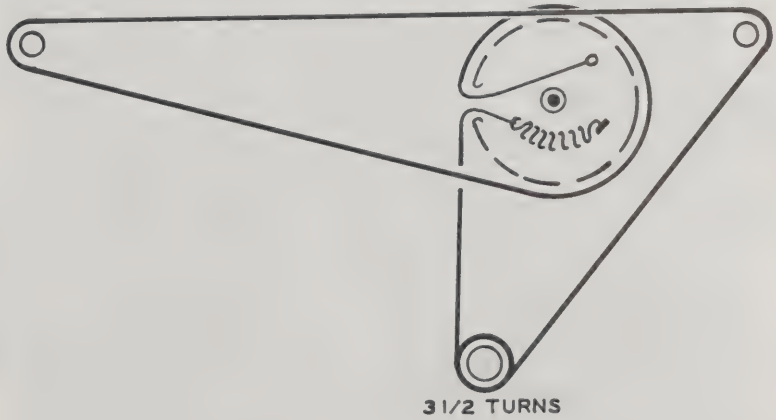


STROMBERG-CARLSON MODEL 1507

TRADE NAME	Stromberg-Carlson, Model 1507
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester, New York
TYPE SET	AC Operated Combination Radio-Phono, AM-FM Superheterodyne Receiver With Loop Antenna
TUBES (TEN)	Types 6BA6 FM RF Amp., 6BA6 AM RF Amp., 12AT7 FM Converter, 6BE6 AM Converter, 6BA6 1st IF Amp., 6BA6 2nd FM IF-AM Det., 6AL5 Ratio Det., 6AU6 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .66 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	535-1630KC — FREQ. MOD. 87-109MC

FOR SERVICE INFORMATION ON RECORD CHANGER SEE V-M MODEL 950 IN PHOTOFACT SET 107 FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

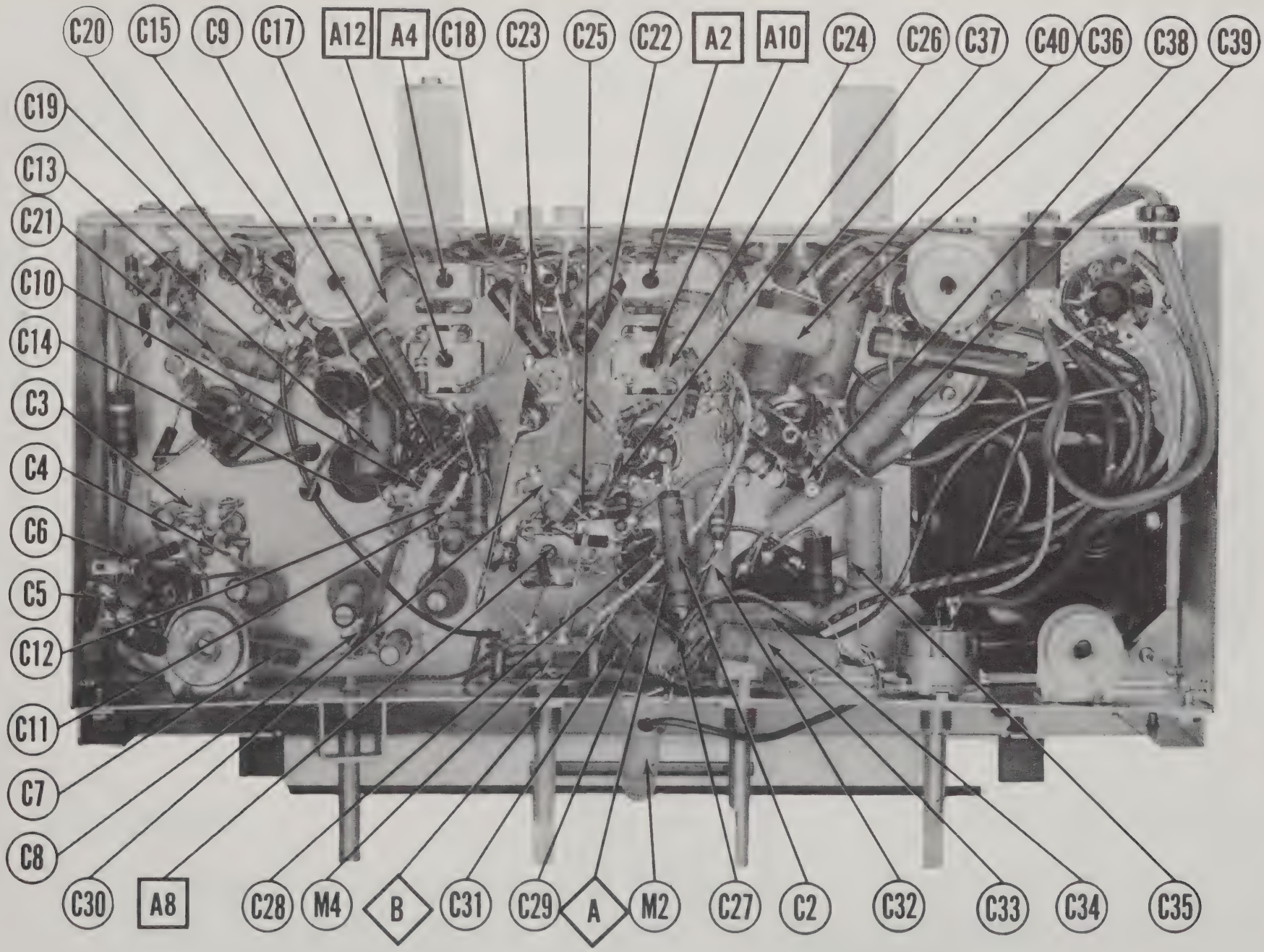
TUNING GANG FULLY CLOSED

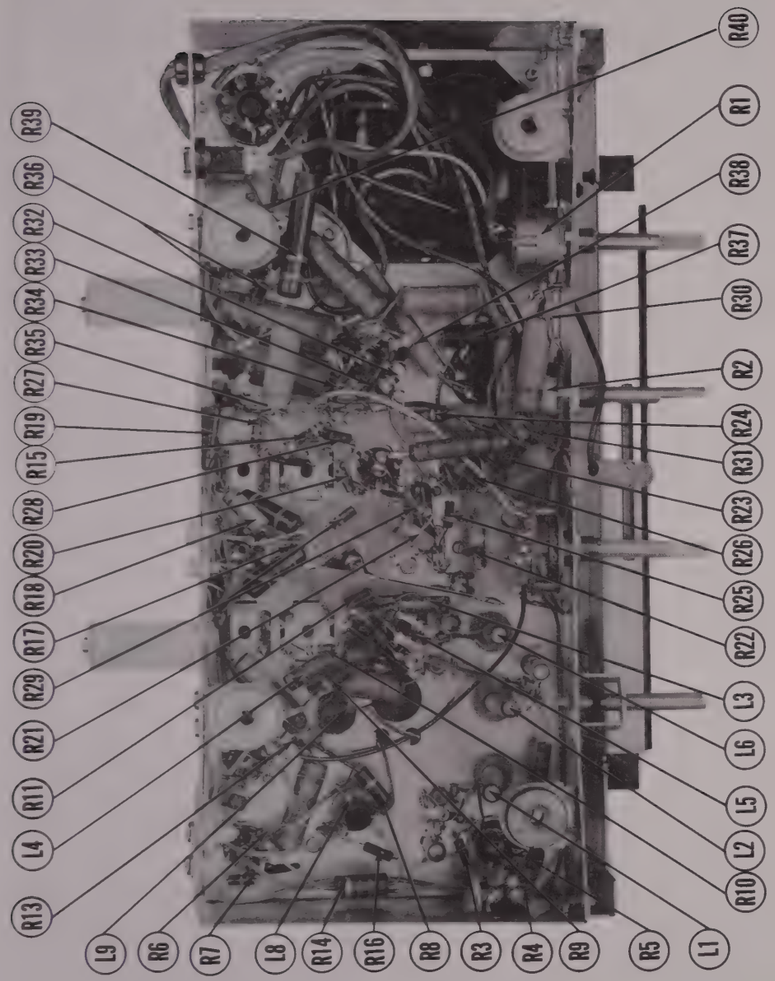


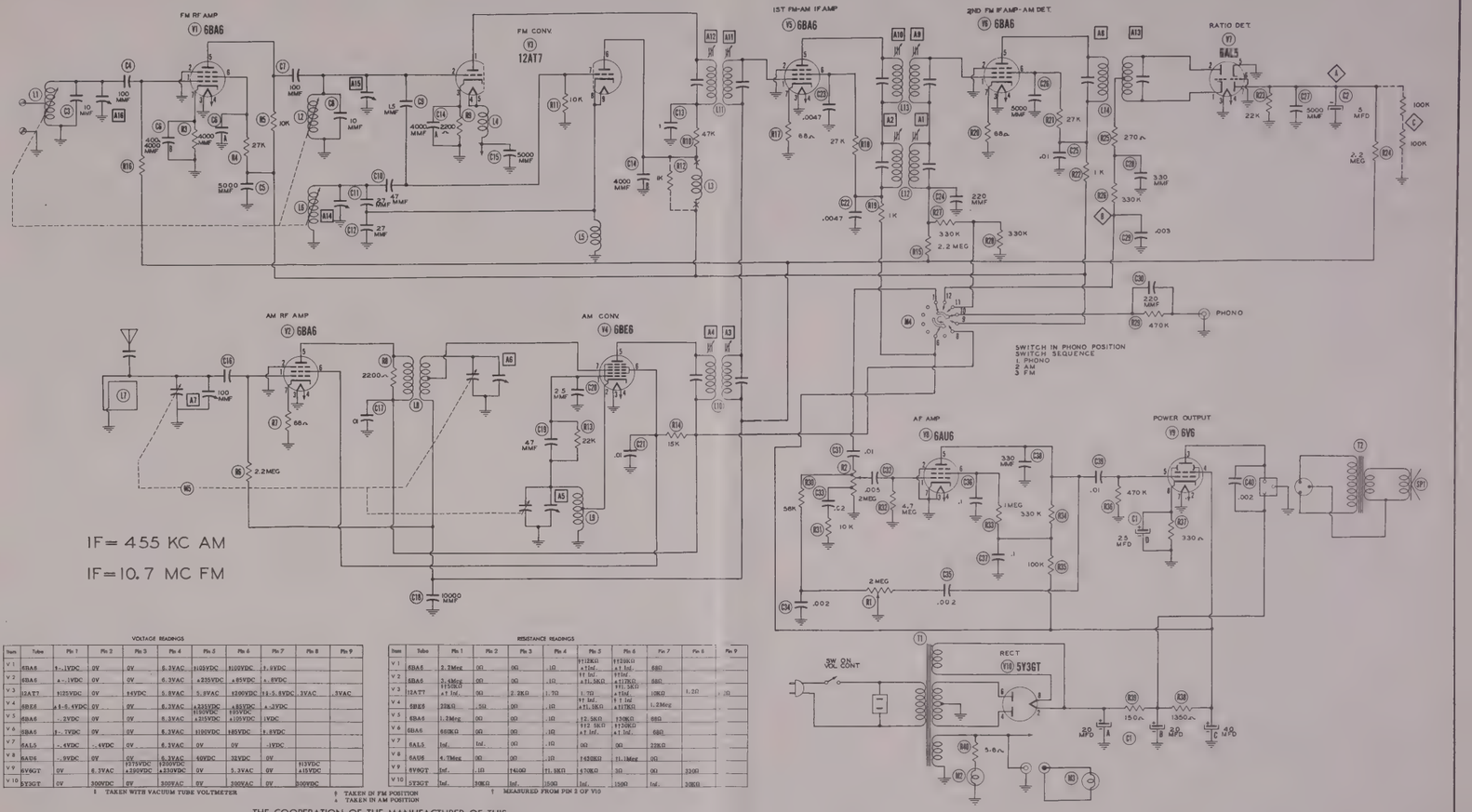
DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C20
C15
C9
C17
A12
A4
C18
C23
C25
C22
A2
A10
C24
C26
C37
C40
C36
C38
C39
C19
C13
C21
C10
C14
C3
C4
C6
C5
C12
C11
C7
C8
C30
A8
C28
M4
B
C31
C29
A
M2
C27
C2
C32
C33
C34
C35





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	1-.1VDC	0V	0V	6.3VAC	105VDC	100VDC	1.8VDC		
V 2	6BA6	4-.1VDC	0V	0V	6.3VAC	235VDC	85VDC	4.8VDC		
V 3	12AT7	125VDC	0V	14VDC	5.8VAC	5.8VAC	200VDC	1-5.8VDC	.3VAC	.3VAC
V 4	6BE6	4-5.4VDC	0V	0V	6.3VAC	235VDC 105VDC	85VDC 105VDC	4-.2VDC		
V 5	6BA6	-.2VDC	0V	0V	6.3VAC	235VDC	105VDC	.1VDC		
V 6	6BA6	8-.7VDC	0V	0V	6.3VAC	100VDC	85VDC	8.8VDC		
V 7	6AL5	-.4VDC	-.4VDC	0V	6.3VAC	0V	0V	.1VDC		
V 8	6AU6	-.8VDC	0V	0V 275VDC	6.3VAC 1200VDC	60VDC	32VDC	0V		
V 9	6V6GT	0V	6.3VAC	290VDC	230VDC	0V	5.3VAC	0V	315VDC 315VDC	
V 10	5Y3GT	0V	300VDC	0V	300VAC	0V	300VAC	0V	300VDC	

‡ TAKEN WITH VACUUM TUBE VOLTMETER
† TAKEN IN FM POSITION
* TAKEN IN AM POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	2.2Meg	0Ω	0Ω	.1Ω	911KΩ ±15% Inf.	922KΩ ±1 Inf. 911KΩ	68Ω		
V 2	6BA6	2.4Meg 1150KΩ	0Ω	0Ω	.1Ω	911.5KΩ	922KΩ 911.5KΩ	68Ω		
V 3	12AT7	±1 Inf.	0Ω	2.2KΩ	1.7Ω	1.7Ω Inf. ±1.5KΩ	±1Inf. 1 Inf. ±1117KΩ	10KΩ	1.2Ω	.1Ω
V 4	6BE6	22KΩ	.5Ω	0Ω	.1Ω	12.5KΩ	132.5KΩ ±2 Inf.	68Ω		
V 5	6BA6	1.2Meg	0Ω	0Ω	.1Ω	12.5KΩ 912.5KΩ ±1 Inf.	132KΩ ±1 Inf.	68Ω		
V 6	6BA6	660KΩ	0Ω	0Ω	.1Ω	12.5KΩ 912.5KΩ ±1 Inf.	132KΩ ±1 Inf.	68Ω		
V 7	6AL5	Inf.	Inf.	0Ω	.1Ω	0Ω	0Ω	22KΩ		
V 8	6AU6	4.7Meg	0Ω	0Ω	.1Ω	1430KΩ	11.1Meg	0Ω		
V 9	6V6GT	Inf.	.1Ω	140Ω	11.5KΩ	470KΩ	3Ω	0Ω	330Ω	
V 10	5Y3GT	Inf.	90KΩ	Inf.	150Ω	Inf.	150Ω	Inf.	90KΩ	

† MEASURED FROM PIN 3 OF V10

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set the pointer to the index mark at the upper left hand end of the dial scale.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to Pin 7 (grid) of 6BE6 (V4). Low side to chassis.	455KC (400 ~ Mod.)	AM (Center)	Tuning gang fully closed.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1500KC	"	1500KC	"	A5, A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for max. output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (A) to chassis. The junction of these two resistors is alignment Point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	.01MFD	High side to Pin 1 (grid) of 6BA6 (V5). Low side to chassis.	10.7MC (Unmod.)	FM (CW)	Tuning gang fully closed.	DC probe to Point (A). Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
4.	"	High side to Pin 2 (grid) of 12AT7 (V3). Low side to chassis.	"	"	"	"	A11, A12	"
5.	"	"	"	"	"	DC probe to Point (B). Common to Point (A).	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 80 % modulation and 450KC sweep. Use 120 % sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
3.	.01MFD	High side to Pin 1 (grid) of 6BA6 (V5). Low side to chassis.	10.7MC (450KC SWP)	FM (CW)	Point of non-interference	Vert. amp. to Point (A). Low side to chassis.	A8, A9, A10	Disconnect stabilizer capacitor C2. Adjust for maximum amplitude and symmetry as per figure 1.
4.	"	High side to Pin 2 (grid) of 12AT7 (V3). Low side to chassis.	"	"	"	"	A11, A12	"
5.	"	"	"	"	"	Vert. amp. to Point (B). Low side to chassis.	A13	Reconnect capacitor C2. Adjust A13 so 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A8 for max. amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	300Ω carbon resistor	High side thru 300Ω to ungrounded FM antenna terminal. Low side to chassis.	100MC (Unmod.)	FM	100MC	DC probe to Point (A). Common to chassis.	A14, A15, A16	Adjust for maximum deflection.

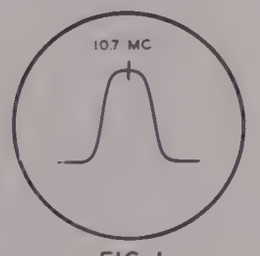


FIG. 1

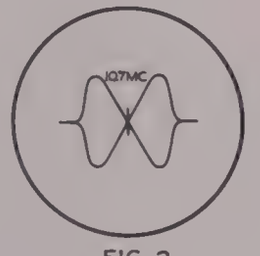
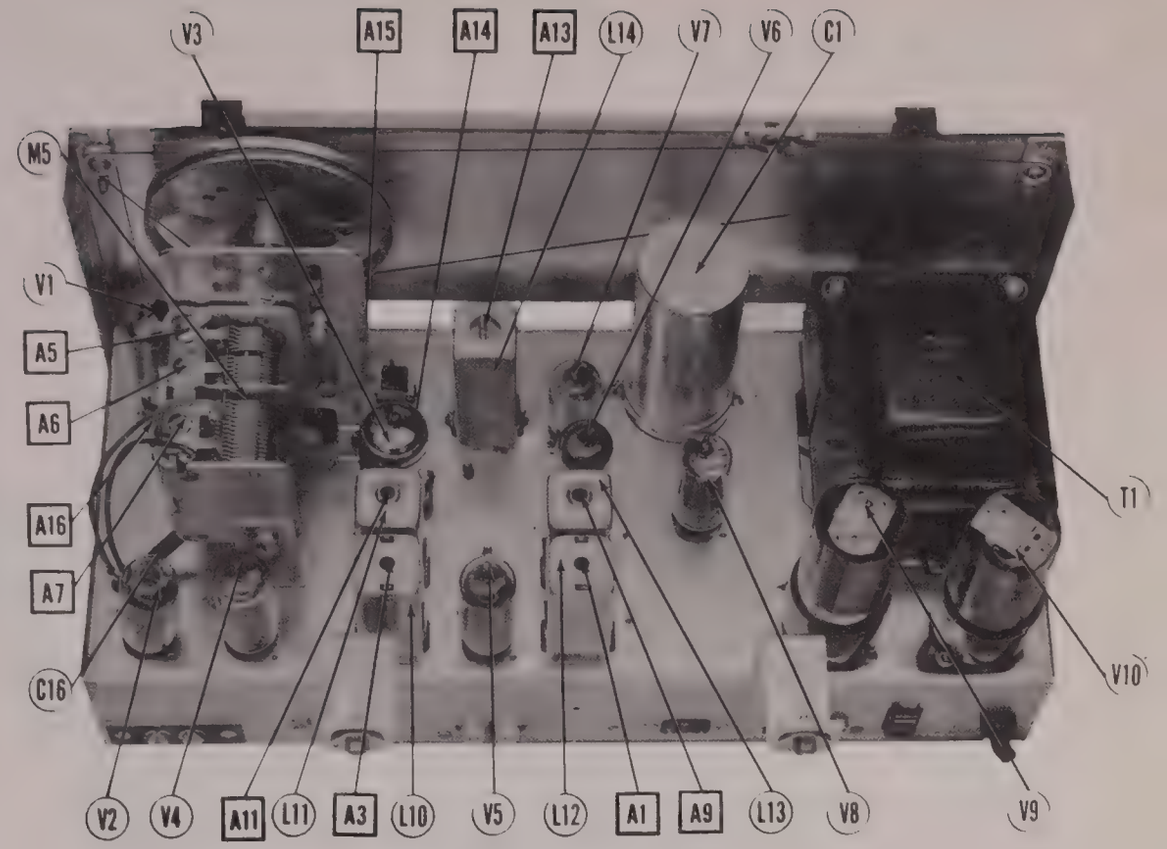


FIG. 2

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROM-CARL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	INSTALLATION NOTES: RMA BASE TYPE
V1	FM RF Amplifier	6BA6	6BA6	7BK
V2	AM RF Amplifier	6BA6	6BA6	7BK
V3	FM Converter	12AT7	12AT7	9A
V4	AM Converter	6BE6	6BE6	7CH
V5	1st FM-AM IF Amp.	6BA6	6BA6	7BK
V6	2nd FM IF Amp. - AM Detector	6BA6	6BA6	7BK
V7	Ratio Detector	6AL5	6AL5	6BT
V8	AF Amplifier	6AU6	6AU6	7BK
V9	Power Output	6V6GT	6V6GT	7AC
V10	Rectifier	5Y3GT	5Y3GT	5T

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: STROM-CARL PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	450	111090	AF884J4A		UP43145C		TVL-4732	● Filter
B	20	450							■ Filter
C	40	350							▲ Filter
D	25	25							Output Cathode
C2	5	50	111047	PR8150/4	TCZ-10	BR550	NPOK-10	TVA-1303	Stabilizing Cap
C3	10		110469	SI10NPO	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C4	100		110460	SI100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
C5	5000		110586	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C6A	4000		110695	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	FM RF Amp. Screen
B	4000					1D5D4			FM RF Amp. Cathode
C7	100		110451	SI100	D6-101	5W5T1	GP1K-100	19C1	RF Coupling
C8	10		110469	SI10NPO	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C9	1.5		110438	SI1.5NPO	TCZ-1.5		NPOK-1.5		Osc. Coupling
C10	47		110458	SI47	D6-470	5W5Q5	GP1K-47	19C25	Osc. Grid Cap
C11	27		110689		TCZ-27		NPOL-27		Fixed Trimmer
C12	27		110690		TCN-27		N750K-27		Fixed Trimmer
C13	.1	400	25483	P488-1	DF-104	PTE54P1		4TM-P1	FM Conv. Dec.
C14A	4000		110695	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	FM Conv. Cathode
B	4000					1D5D4			FM Osc. Plate
C15	5000		110586	BPD-005	DD-502	1D5D5	811-005	29C1	Filament Bypass
C16	100		110451	SI100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
C17	.01		110687	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Decoupling
C18	10000	400	110672	BPD-01	DD-103	PTE4S1	821-01	4TM-S1	AVC Filter
C19	47		110458	SI47	D6-470	5W5Q5	GP1K-47	19C25	Osc. Grid Cap
C20	2.5		110412				N750K-2.5		Fixed Trimmer
C21	.01	400	110687	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Decoupling
C22	.0047	400	110538	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	1st IF Decoupling
C23	.0047	400	110538	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	1st IF Screen
C24	220		110462	SI220	D6-221	5W5T2	GP2K-220	19C13	Diode RF Filter
C25	.01	400	110540	P488-01	D6-103	PTE4S1	821-01	4TM-S1	2nd IF Decoupling
C26	5000		110586	BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Screen
C27	5000		110586	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C28	330		110463	SI330	D6-331	5W5T3	GP2K-330	19C14	Diode Load Cap
C29	.003	400	46315	P688-003	D6-302	PTE6D3	GP2M-003	6TM-D3	De-emphasis
C30	220		110462	SI220	D6-221	5W5T2	GP2K-220	19C13	Tone Comp.
C31	.01	400	110687	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C32	.005	400	110688	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C33	.02	400	25150	P488-02	DF-203	PTE4S2		4TM-S2	Tone Comp.
C34	.002	600	27646	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Tone Comp.
C35	.002	600	27646	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Tone Comp.
C36	.1	400	25483	P488-1	DF-104	PTE4P1		4TM-P1	AF Amp. Screen
C37	.1	400	25483	P488-1	DF-104	PTE4P1		4TM-P1	AF Amp. Plate Dec.
C38	330		110463	SI330	D6-331	5W5T3	GP2K-330	19C14	AF Amp. Plate
C39	.01	600	25485	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Audio Coupling
C40	.002	600	27646	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Output Plate

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	Strom-Carl PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½	145119	Q11-139	AG-83-S	B-75-S	Tone Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A Per Instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A Per Instructions
R2	2Meg	½	114118	Q13-139XX			Volume Control - Tapped ⓐ 200KΩ and 1Meg

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STROM-CARL PART No.	IRC PART No.	
R3	68Ω	½	28144		FM RF Amp. Cathode
R4	27KΩ	1	34578		FM RF Amp. Screen
R5	10KΩ	1	30417		FM RF Amp. Plate
R6	2.2Meg	½	149121		AM RF Amp. Grid
R7	68Ω	½	28144		AM RF Amp. Cathode
R8	2200Ω	1	28162	BTA-2200	AM RF Coil Shunt
R9	2200Ω	1	28162	BTA-2200	FM Mixer Cathode
R10	47KΩ	½	149111		FM Mixer Plate Decoupling
R11	10KΩ	½	149107		FM Osc. Grid
R12	1000Ω	½	149101	BTS-1000	Decoupling - See Note 1
R13	22KΩ	½	149109		AM Osc. Grid
R14	15KΩ	2	149055		Decoupling - See Note 2
R15	2.2Meg	½	149121	BTS-2.2Meg	AVC Network - See Note 6
R16	1Meg	½	149119	BTS-1Meg	RF Amp. Grid
R17	68Ω	½	28144		1st IF Amp. Cathode
R18	27KΩ	1	34578		1st IF Amp. Screen
R19	1000Ω	½	149101	BTS-1000	1st IF Amp. Decoupling
R20	68Ω	½	28144		2nd FM IF Amp. Cathode
R21	27KΩ	1	34578		2nd FM IF Amp. Screen
R22	1000Ω	½	149101	BTS-1000	2nd FM IF Amp. Decoupling
R23	22KΩ	½	149109	BTS-22K	Ratio Det. Diode Load
R24	2.2Meg	½	149121	BTS-2.2Meg	AVC Network - See Note 6
R25	270Ω	½	28151	BTS-270	Balancing
R26	22KΩ	½	149109	BTS-22K	De-emphasis
R27	330KΩ	½	28184	BTS-330K	Diode Filter - See Note 3
R28	330KΩ	½	28184	BTS-330K	Diode Load - See Note 3
R29	470KΩ	½	149117	BTS-470K	Series Phono - See Note 5
R30	56KΩ	½	28178	BTS-56K	Tone Compensation
R31	10KΩ	½	149107	BTS-10K	Tone Compensation
R32	4.7Meg	½	149123	BTS-4.7Meg	AF Amp. Grid
R33	1Meg	½	149119	BTS-1Meg	AF Amp. Screen
R34	330KΩ	½	28184	BTS-330K	AF Amp. Plate - See Note 3
R35	100KΩ	½	149113	BTS-100K	AF Amp. Decoupling
R36	470KΩ	½	149117	BTS-470K	Output Grid - See Note 5
R37	330Ω	2		BTB-330	Output Cathode - See Note 4
R38	1350Ω	4	149321		Filter - Wire Wound
R39	150Ω	2	149071	BW-2-150	Filter
R40	5.6Ω	½	149374	BW-½-5.6	Series Dial Light

Note 1. Some models use 2.2 microhenries choke in this application.
Note 2. Some models use 12KΩ resistor in this appliaction.
Note 3. Some models use 270KΩ resistor in this application.
Note 4. Some models use 270Ω resistor in this application.
Note 5. Some models use series resistor to obtain desired value in this application.
Note 6. Some models use parallel resistor to obtain desired value in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STROM-CARL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ .66A	640VCT .081ADC	5VAC ⓐ 2A	6.3VAC ⓐ 3.2A	161032	PM8409 ②		

② Add series resistor to reduce plate voltage.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	STROM-CARL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T2	6KΩ	3.4Ω	260Ω	.33Ω	161257	A-3878①	A-2930 ①	R0-9 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD.	V. C. IMP.	STROM-CARL PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.4Ω	15154	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11 5/8"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA STROM-CARL PART No.	MEISSNER PART No.	IRC PART No.	NOTES
L1	FM Ant. Coil	0Ω		114097			
L2	FM RF Coil	0Ω		114098			
L3	RF Choke	1.8Ω		114693		CLA	2.2 Microhenries (Some Models Use 1KΩ Resistor)
L4	Fil. Choke	1.8Ω		114693		CLA	2.2 Microhenries
L5	Cathode Choke	1.8Ω		114693		CLA	2.2 Microhenries
L6	FM Osc. Coil	0Ω		114098			
L7	Loop Ant.	2.2Ω		139043			
L8	AM RF Coil	1.3Ω	10Ω	114095			Secondary Tapped at 4.2Ω
L9	AM Osc. Coil	7.9Ω		114096			Tap at .5Ω
L10	1st AM IF	17Ω	17Ω	114364			
L11	1st FM IF	1.5Ω	1.5Ω	114403			
L12	2nd AM IF	10Ω	10Ω	114337			
L13	2nd FM IF	1.4Ω	1.4Ω	114363			
L14	Ratio Det. Trans.	3Ω	.5Ω	114404			

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1		LQD-1J	Q-33J Q-J			96-0	0-1, 0-3 S-1, S-3	

ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA STROM-CARL PART No.		NOTES
M2	Bayonet	6-8	.25	Blue	29956		Type #44 (Radio Dial)
M3	Bayonet	6-8	.25	Blue	29956		Type #44 (Phono Compartment)

MISCELLANEOUS

ITEM No.	PART NAME	STROM-CARL PART No.	NOTES
M4	Switch	158044	FM-AM-Phono
M5	3 Gang Var. Cap	110044	(21-482MMF, 18-250MMF, 14-104MMF)
	Dial Glass	122039	
	Dial Pointer	144022	
	Knob	134058	Plain
	Knob	134070	Indicator

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRAD
MODEL T-20, A

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

TRAD
MODEL T-20, A

TRAD MODEL T-20, A

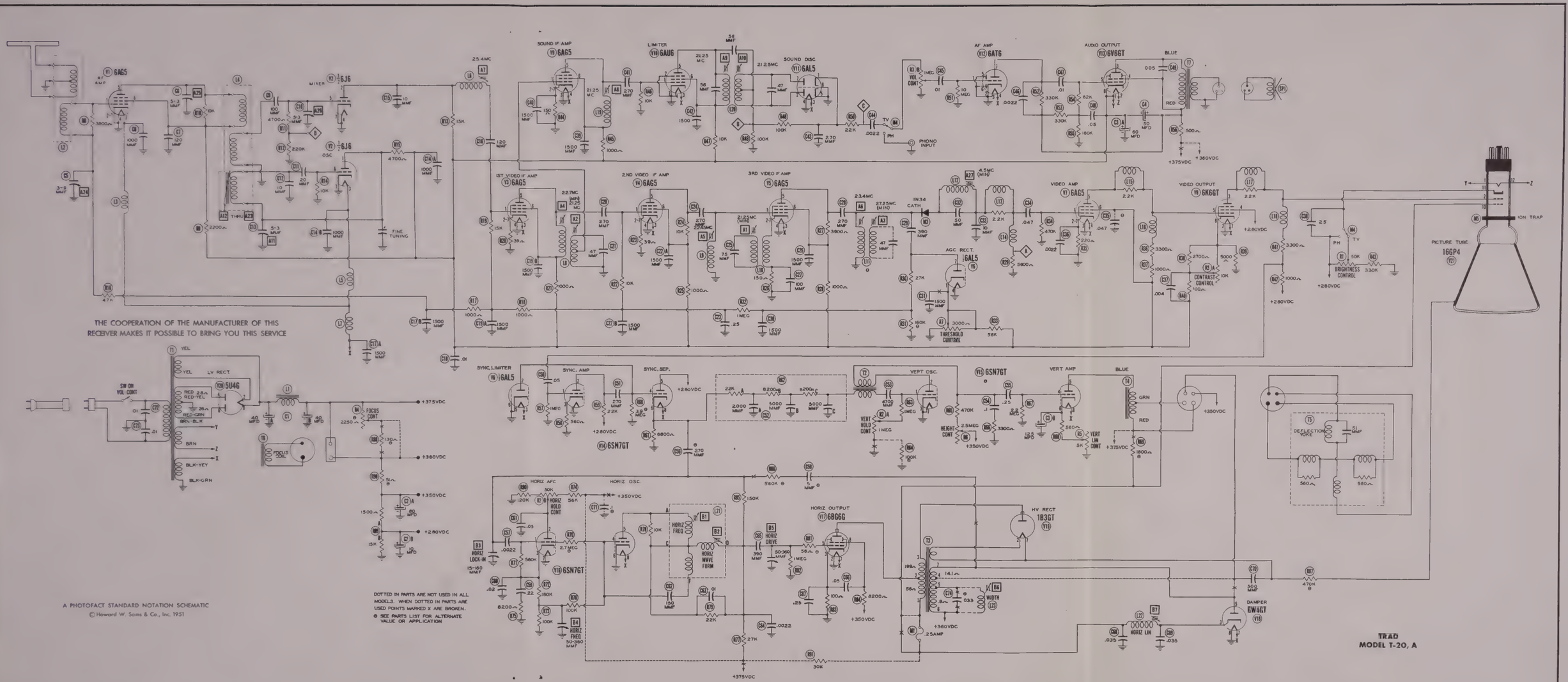
TRADE NAME	Trad, Model T-20, A
MANUFACTURER	Trad Television Corp., Asbury Park, New Jersey
TYPE SET	Television Receiver
TUBES	Twenty One
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.95 Amp.@ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13

INDEX

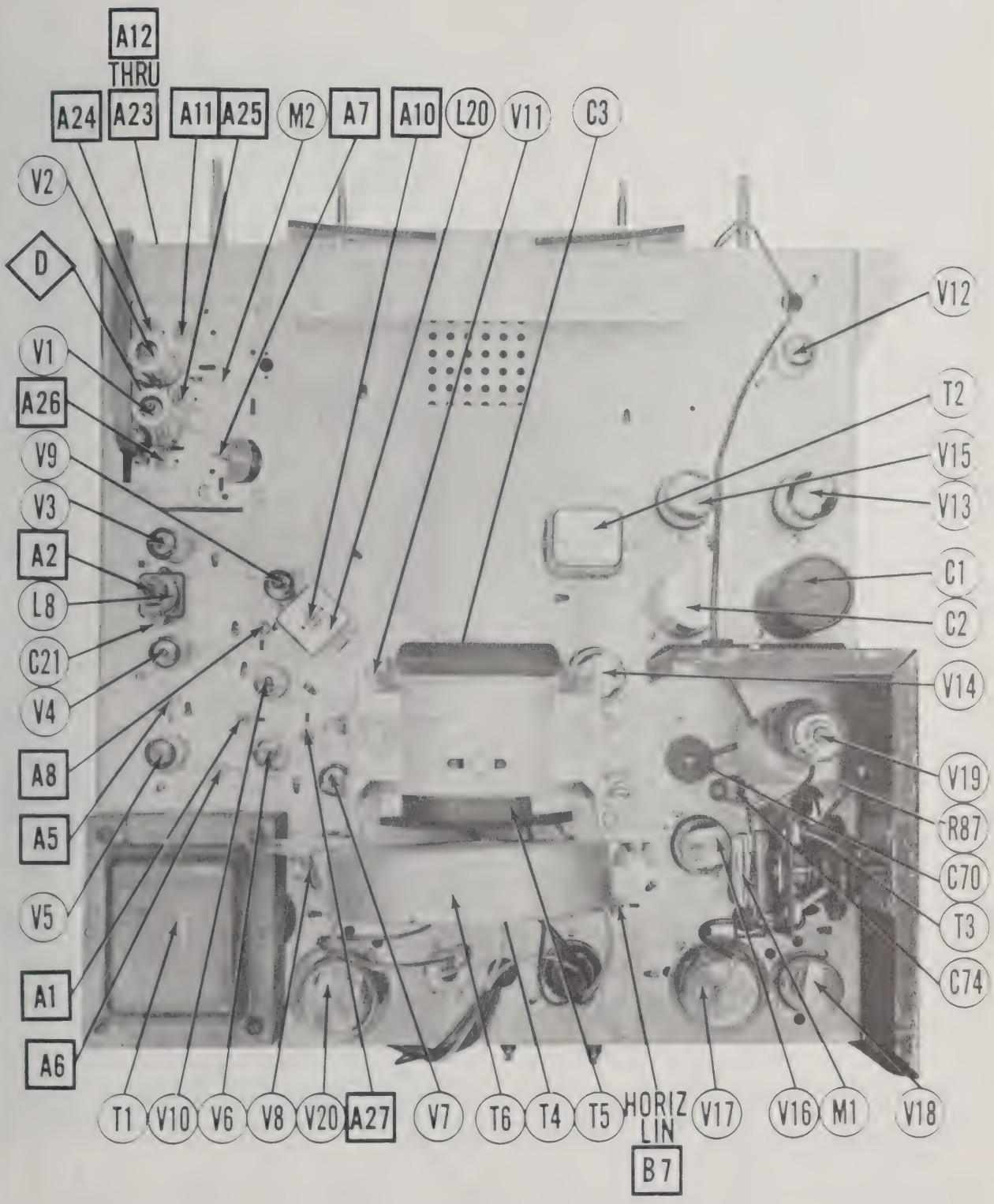
Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustment 11
Parts List And Description 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor And Alignment Identification 4, 9
Photographs (Continued)
Chassis - Top View 3
RF Tuner 10
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Chart 5
Voltage And Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

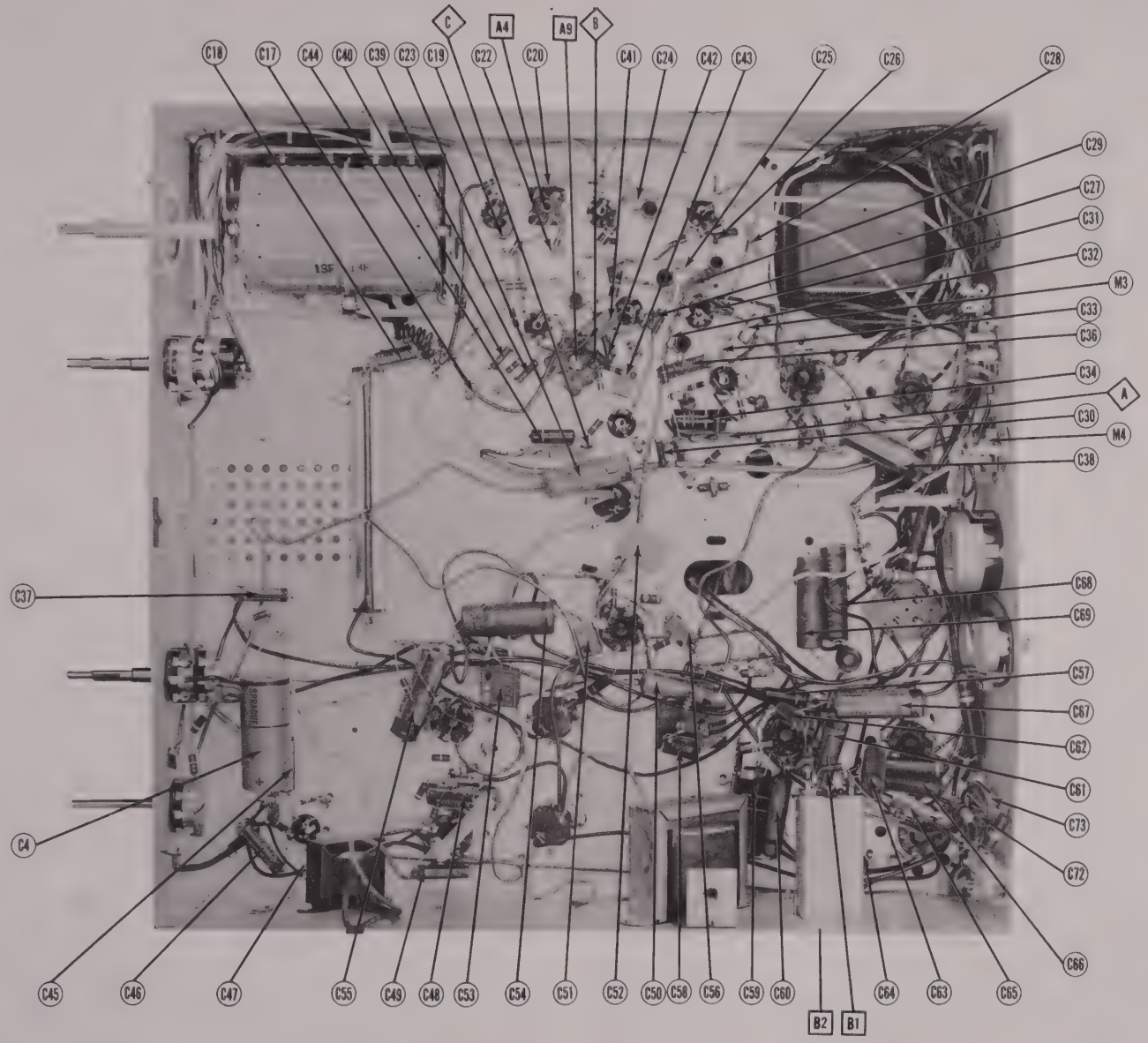
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
TRAD
MODEL T-20, A

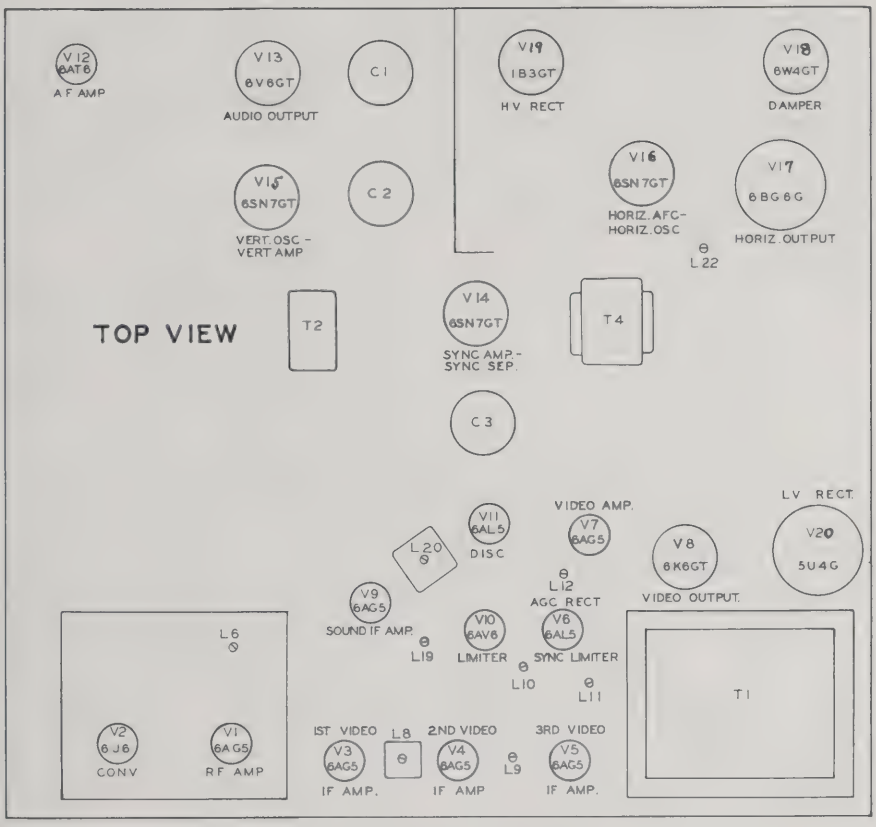
TRAD
MODEL T-20, A

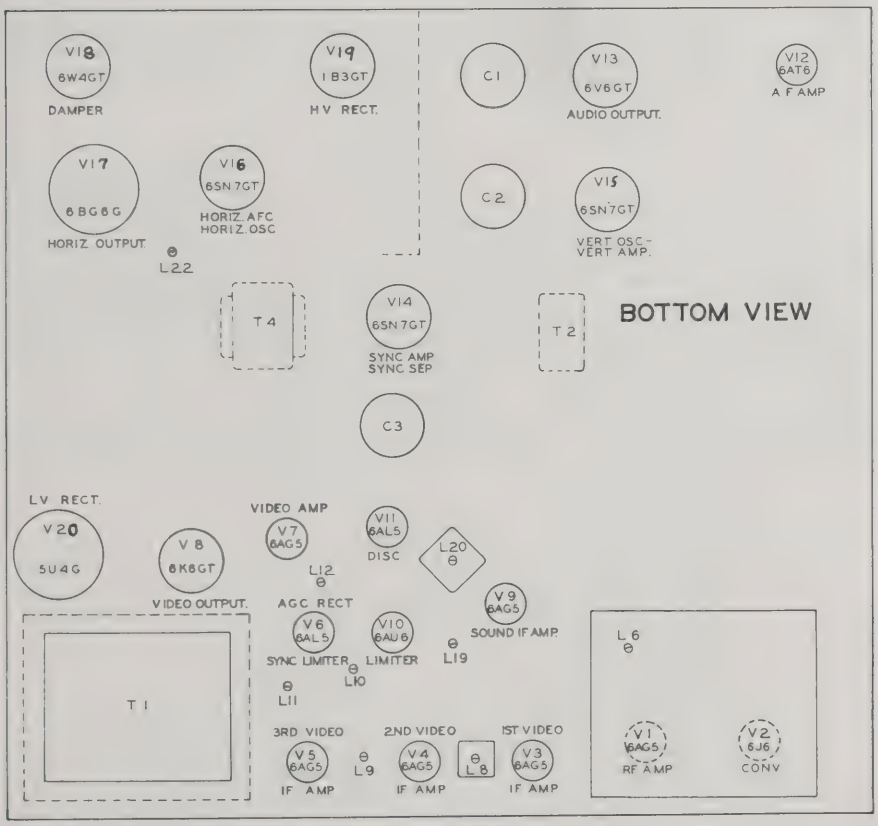


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), from its socket and replace it with a 6J6 which has 1 pin removed. This will disable the local oscillator and prevent the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.25MC (Unmod.)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	27.25MC	"	"	A3	Adjust for MINIMUM deflection. Early production models do not have this trap.
3.	"	"	22.7MC	"	"	A4	Adjust for maximum deflection.
4.	"	"	22.45MC	"	"	A5	"
5.	"	"	23.4MC	"	"	A6	"
6.	"	"	25.4MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt battery to the junction of R32 and C23. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24MC (10MC SWP)	23MC 25.75MC	Any	Vert. amp. thru 100KΩ to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A7 to place the 25.75MC marker at 50% response, and A4 to properly place the 23MC marker. A6 may be retouched to flatten the center region of the curve.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.25MC (Unmod.)	Any	DC probe to Point (B). Common to chassis.	A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to Point (C). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.25MC (450KC SWP)	21.25MC	Any	Vert. amp. thru 100KΩ to Point (B). Low side to chassis.	A8, A9	Adjust for maximum amplitude and symmetry as per figure 2.
9.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A10	Adjust A10 so 21.25MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A-11. It should be noted that this is an all channel oscillator circuit adjustment, and should not be adjusted for any individual channel. If adjustment of A-11 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Direct	High side to either ant. terminal. Low side to chassis.	215.75MC (Unmod.)	13	DC probe to Point (C). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A13	
			203.75MC	11		A14	
			197.75MC	10		A15	
			191.75MC	9		A16	
			185.75MC	8		A17	
			179.75MC	7		A18	
			87.75MC	6		A19	
			81.75MC	5		A20	
			71.75MC	4		A21	
			65.75MC	3		A22	
			59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
If video response was not checked connect a 3 volt battery as outlined under "overall video IF response check".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistor	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point ◇. Low side to chassis.	A24, A25, A26	Adjust for response curve similar to figure 4. with markers above 90%.
12.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to figure 4. If markers fall below 70% on any channel make slight adjustment of A24, A25 and A26 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

4.5MC TRAP ADJUSTMENT

After alignment is completed and receiver is turned to original operating condition, short the trap winding of L10. Tune in a strong TV station and examine the picture for evidence of 4.5MC beat interference. If interference is present adjust the 4.5MC trap adjustment, (A27), to eliminate or minimize the interference. Remove the short from L10.

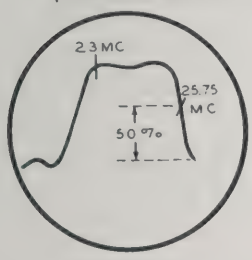


FIG. 1

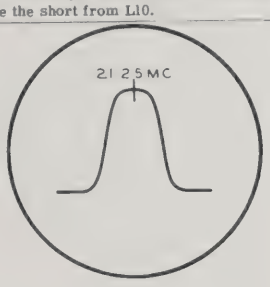


FIG. 2

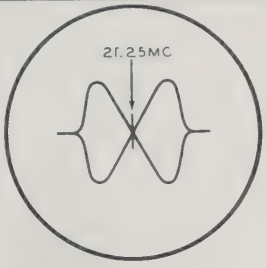


FIG. 3

FIG. 4

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.4VDC	0V	6.3VAC	0V	90VDC	90VDC	0V		
V 2	6J6	70VDC	75VDC	6.3VAC	0V	-.7VDC	§-4.4VDC	0V		
V 3	6AG5	-.4VDC	.1VDC	6.3VAC	0V	110VDC	110VDC	.1VDC		
V 4	6AG5	-.4VDC	.1VDC	6.3VAC	0V	60VDC	110VDC	.1VDC		
V 5	6AG5	0V	1.2VDC	6.3VAC	0V	85VDC	110VDC	1.2VDC		
V 6	6AL5	6.8VDC 0V	-1VDC	6.3VAC	0V	0V	0V	-.5VDC 0V		
V 7	6AG5	0V	1.3VDC	0V	6.3VAC	95VDC	115VDC	1.3VDC		
V 8	6K6GT	180VDC	0V	180VDC	285VDC	95VDC	180VDC	6.3VAC	105VDC	
V 9	6AG5	0V	1.2VDC	0V	6.3VAC	110VDC	110VDC	1.2VDC		
V 10	6AU6	-.3VDC	0V	6.3VAC	0V	65VDC	65VDC	0V		
V 11	6AL5	.2VDC	-.4VDC	6.3VAC	0V	0V	0V	-.4VDC		
V 12	6AT6	-.5VDC	0V	0V	6.3VAC	0V	0V	75VDC		
V 13	6V6GT	0V	▲6.3VAC	▲200VDC	▲220VDC	▲-7.2VDC	0V	▲0V	115VDC	
V 14	6SN7GT	0V	145VDC	3.6VDC	-1VDC	280VDC	12VDC	0V	6.3VAC	
V 15	6SN7GT	-15VDC -65VDC	230VDC 100VDC	0V	0V	470VDC 420VDC	25VDC 8VDC	0V	6.3VAC	
V 16	6SN7GT	-2.8VDC	160VDC	-6.5VDC	-90VDC	275VDC	0V	0V	6.3VAC	
V 17	6BG6G	375VDC	0V	13VDC	345VDC	-2.7VDC	0V	6.3VAC	270VDC	TOP CAP *
V 18	6W4GT	0V	0V	500VDC	0V	350VDC	0V	6.3VAC	0V	
V 19	1B3GT	* DO NOT MEASURE								
V 20	5U4G	0V	385VDC	0V	375VAC	0V	375VAC	0V	385VDC	
V 21	16GP4	▲0V	175VDC	PIN 10 500VDC	PIN 11 280VDC	PIN 12 ▲6.3VAC				

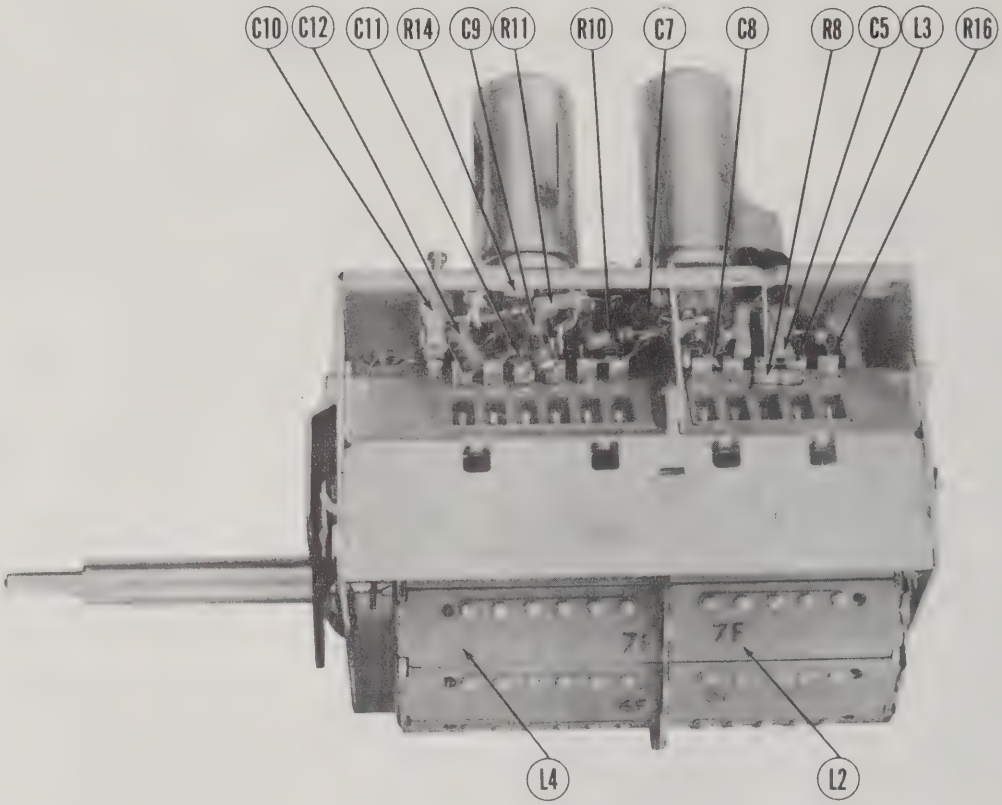
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
TV-PHONO SWITCH IN TV POSITION
FOCUS CONTROL COUNTER CLOCKWISE
§ TAKEN WITH VACUUM TUBE VOLTMETER
▲ MEASURED FROM PIN 8 OF V13
* DO NOT MEASURE

RESISTANCE READINGS

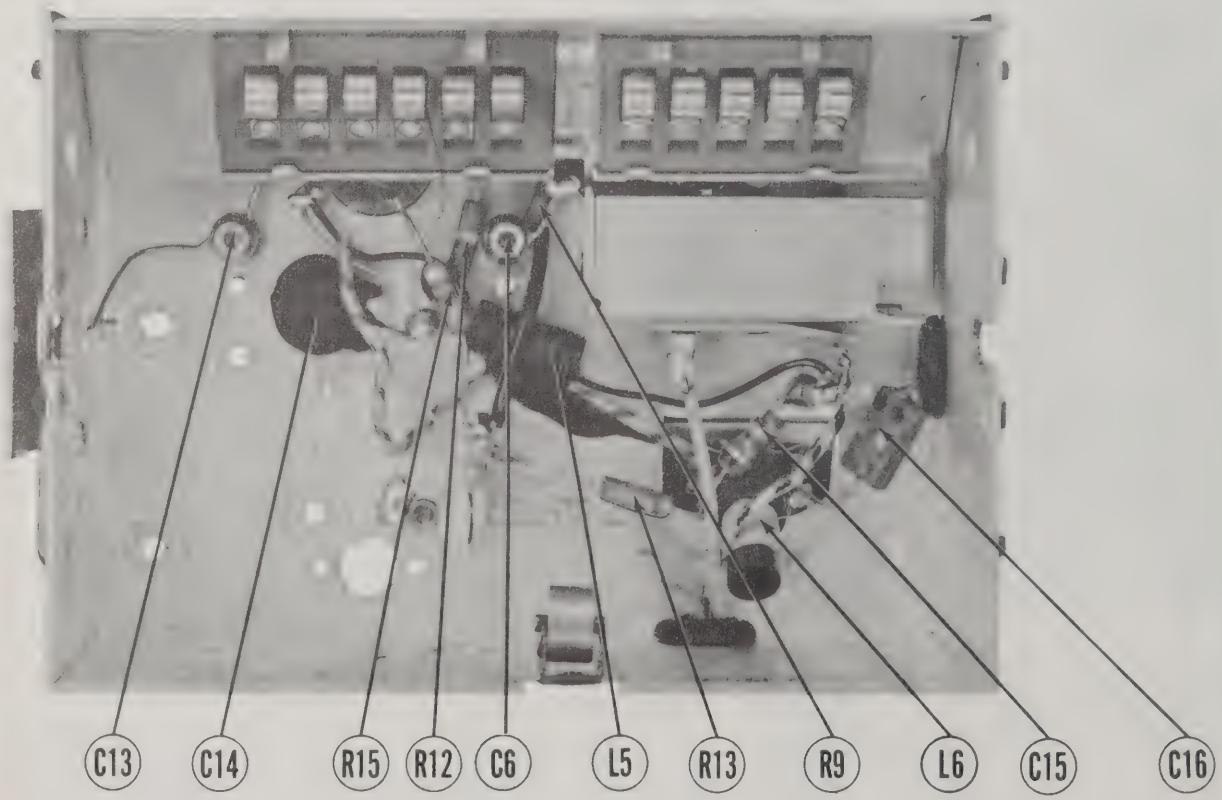
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	1.2Meg	0Ω	.1Ω	0Ω	▲2.2KΩ	▲2.2KΩ	0Ω		
V 2	6J6	▲4.7KΩ	▲15KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AG5	1.1Meg	39Ω	.1Ω	0Ω	▲1KΩ	▲1KΩ	39Ω		
V 4	6AG5	1.1Meg	39Ω	.1Ω	0Ω	▲1KΩ	▲1KΩ	39Ω		
V 5	6AG5	.3Ω	150Ω	.1Ω	0Ω	▲4.9KΩ	▲1KΩ	150Ω		
V 6	6AL5	3KΩ 0Ω	3.9Meg	.1Ω	0Ω	0Ω	0Ω	190KΩ		
V 7	6AG5	470KΩ	220Ω	0Ω	.1Ω	▲4.3KΩ	▲0Ω	220Ω		
V 8	6K6GT	†6KΩ	0Ω	†6KΩ	†1.7KΩ	▲4.3KΩ	†6KΩ	.1Ω	▲2KΩ	
V 9	6AG5	0Ω	150Ω	0Ω	.1Ω	▲1KΩ	▲1KΩ	150Ω		
V 10	6AU6	10KΩ	0Ω	.1Ω	0Ω	▲10KΩ	▲10KΩ	0Ω		
V 11	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 12	6AT6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 13	6V6GT	Inf.	▲.2Ω	†900Ω	†550Ω	225KΩ	Inf.	▲0Ω	6.2KΩ	
V 14	6SN7GT	1Meg	†23KΩ	560Ω	3.9Meg	†1.7KΩ	6.8KΩ	0Ω	.1Ω	
V 15	6SN7GT	2Meg	†470KΩ †3Meg	0Ω	2.2Meg	#3KΩ	5.6KΩ 560Ω	0Ω	.1Ω	
V 16	6SN7GT	750KΩ	†60KΩ	280KΩ	200KΩ	†27KΩ	0Ω	0Ω	.1Ω	
V 17	6BG6G	†48Ω	0Ω	100Ω	†170Ω	1Meg	Inf.	.1Ω	†8.4KΩ	TOP CAP #90Ω
V 18	6W4GT	Inf.	Inf.	Inf.	Inf.	†170Ω	Inf.	.1Ω	0Ω	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #290Ω
V 20	5U4G	Inf.	15KΩ	Inf.	28Ω	Inf.	28Ω	Inf.	15KΩ	
V 21	16GP4	▲0Ω	†6KΩ	PIN 10 #35Ω	PIN 11 15KΩ	PIN 12 ▲.2Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL COUNTER CLOCKWISE
▲ MEASURED FROM PIN 8 OF V13
† MEASURED FROM PIN 8 OF V20
TV-PHONO SWITCH IN TV POSITION
MEASURED FROM PIN 3 OF V18.

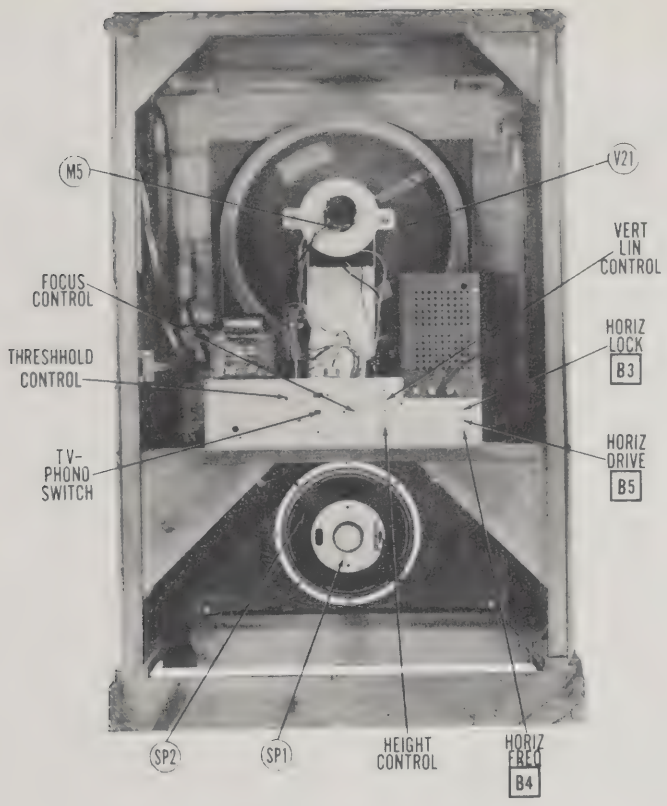
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR CHECK

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to maximum counter-clockwise.
The picture should remain in sync.
Momentarily interrupt the signal by switching to another channel and back again. The picture should pull into sync.
Slowly turn the hold control clockwise. After approximately 50% rotation the picture should shift to the right with the blanking bar about half way across the picture, and then go out of synchronization. Continue turning the hold control clockwise.
The number of diagonal bars should increase to about 5 at extreme clockwise.
If the receiver passes the above check, no oscillator alignment is required; if not, continue with horizontal oscillator alignment.

HORIZONTAL OSCILLATOR ALIGNMENT

Pre-set adjustments as follows:
Horizontal lock trimmer, (B3), 1/2 turn counter -clockwise from tight.
Horizontal frequency trimmer, (B4), one turn counter-clockwise from tight.
Horizontal drive trimmer, (B5), 3 or 4 turns counter-clockwise from tight.
Horizontal frequency slug, (B1), so the brass screw extends 3/4 inch from the nut.
Turn the horizontal hold control to almost fully counter-clockwise, and the contrast control counter-clockwise to obtain a weak picture.
Adjust the phasing slug, (B2), until the picture synchronizes horizontally.
Adjust B1 until the picture will hold sync over approximately 50% rotation of the hold control, (maximum counter-clockwise to 50% clockwise).
Advance the contrast control to approximately normal.
Check the range of the hold control. The picture should remain in sync over approximately 50% rotation and show 5 sloping bars at maximum clockwise. If more or less than 5 bars are present adjust the horizontal lock trimmer, (B3), until 5 bars are present. If 5 bars cannot be obtained with a slight adjustment of B3, adjust the horizontal frequency trimmer, (B4), until 5 bars are present.
Repeat the check of the hold control range and, if necessary, adjust B4 for proper operation.
Adjust the horizontal drive trimmer, (B5), for maximum width without undue loss of horizontal linearity.
Since the setting of the drive adjustment effects the horizontal oscillator frequency, recheck the horizontal oscillator if the drive trimmer required much adjustment.
If the set has a width slug, (B6), adjust it until the picture fills the mask.
Adjust the horizontal linearity slug, (B7), until the picture is symmetrical from left to right; readjustment of B5 may be necessary to obtain optimum linearity.

AGC THRESHOLD ADJUSTMENT

The correct setting of the threshold control will be determined by the signal strength in the area where the set is to operate.
This control should be adjusted so the picture is just below the point of overloading with the contrast control at maximum.

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Remove six wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove three hex head bolts from chassis. Remove chassis.
7. Remove four hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: TRAD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	BASE TYPE	NOTES
V1	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AG5	6AG5	7BD	
V4	2nd Video IF Amp.	6AG5	6AG5	7BD	
V5	3rd Video IF Amp.	6AG5	6AG5	7BD	
V6	AGC Rectifier - Sync. Limiter	6AL5	6AL5	6BT	
V7	Video Amplifier	6AG5	6AG5	7BD	
V8	Video Output	6K6GT	6K6GT	7S	
V9	Sound IF Amp.	6AG5	6AG5	7BD	
V10	Limiter	6AU6	6AU6	7BK	
V11	Sound Discr.	6AL5	6AL5	6BT	
V12	AF Amplifier	6AT6	6AT6	7BT	
V13	Audio Output	6V6GT	6V6GT	7AC	
V14	Sync. Amplifier - Sync. Separator	6SN7GT	6SN7GT	8BD	
V15A	Vert. Osc. and Amplifier	6SN7GT	6SN7GT	8BD	
B	Vert. Osc.	6J5	6J5	6Q	In models employing this tube, V15A becomes the vertical amplifier only.
V16	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19	H.V. Rectifier	1B3GT	1B3GT	3C	
V20	L.V. Rectifier	5U4G	5U4G	5T	
V21	Picture Tube	16GP4	16GP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AFH88J		UPT4445		TVL-2764	▲ Filter
B	40	450							▲ Filter
C2A	80	450		AFH62J		UPT8145		TVL-2776	▲ Filter
B	10	450							▲ Filter
C3A	60	200		AF12F		UP6025		TVL-1525	■ Decoupling
B	125	25		PR525/100		BRH25IA		TVA-1207	▲ Vert. Output Cathode
C4	50	250		PR3450/40		BR5023		TVA-1511	Decoupling
C5	3-9								Variable Trimmer
C6	5-3				829-3				Variable Trimmer
C7	120			SI120	D6-121		GP2K-120	19C29	RF Amp. Dec.
C8	1000			BPD-001	DD-102		80L-001	19C1	RF Amp. Fil.
C9	100			SI100N750	TCN-100		N750L-100	29C16	RF Coupling
C10	5-3				829-3				Variable Trimmer
C11	20			SI20NPO	TCZ-20		NPOK-20		Osc. Grid Cap
C12	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C13	5-3				829-3				Variable Trimmer
C14A	1000			BPD-2X001	DD-2-102		812-2X001	29C7	RF Bypass
B	1000								Conv. Filament
C15	10			SI10NPO	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C16	120	500		SI120	D6-121		GP2K-120	19C29	IF Coupling
C17A	1500			BPD-2X0015	DD-2-152	1WSD15	812-2X0015	29C6	Filament Bypass
B	1500					1WSD15			AGC Filter
C18	.01	600		P688-01	D6-103	PTE6SI	821-01	6TM-SI	RF Bypass
C19A	1500			BPD-2X0015	DD-2-152	1WSD15	812-2X0015	29C6	AGC Filter
B	1500					1WSD15			1st V. IF Dec.
C20	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	IF Coupling
C21	47			SI47NPO	TCZ-47		NPOM-47	29C14	Fixed Trimmer
C22A	1500			BPD-2X0015	DD-2-152	1WSD15	812-2X0015	29C6	2nd V. IF Dec.
B	1500					1WSD15			AGC Filter
C23	25	400		P488-25		GT4P25		4TM-P25	AGC Filter
C24	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	IF Coupling
C25	75			SI75NPO	TCZ-75		NPOM-75		Fixed Trimmer
C26	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	3rd V. IF Dec.
C27	100			SI100	D6-101	5WST1	GP1K-100	19C11	3rd V. IF Cathode
C28	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	IF Coupling
C29	390	500		1468-0004	D6-391	5WST4	GP2K-390	1FM-34	IF Coupling
C30	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	AGC Filter
C31	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	DAGC Decoupling
C32	10			SI10	D6-100	5W5Q5	GP1K-10	19C19	Fixed Trimmer
C33	10			SI10	D6-100	5W5Q1	GP1K-10	19C19	V. Diode Filter
C34	.047	400		P488-047	DF-503	PTE4SS		4TM-S47	Video Coupling
C35	.047	400		P488-047	DF-503	PTE4SS		4TM-S47	RF Bypass
C36	.0022	600		P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	V. Amp. Cathode
C37	.004	600		P688-004	D6-402	PTE6D4	GP2M-004	6TM-D4	Video Output Cathode
C38	.25	400		P488-25		GT4P25		4TM-P25	Pic. Tube Cathode
C39	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	1st S. IF Dec.
C40	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	1st S. IF Cathode
C41	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	IF Coupling
C42	1500			SI1500	D6-152	1WSD15	GP2L-0015	29C8	Limiter Decoupling
C43	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	RF Bypass
C44	.0022	600		P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	Audio Coupling
C45	.01	600		P688-01	D6-103	PTE6SI	821-01	6TM-SI	Audio Coupling
C46	.0022	600		P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	De-emphasis
C47	.01	600		P688-01	D6-103	PTE6SI	821-01	6TM-SI	Audio Coupling
C48	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Bias Filter
C49	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C50	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C51	270	500		SI270	D6-271	5WST2S	GP2K-270	19C31	Sync. Coupling
C52A	2000		†	P688-002	†	PTE6D2	GP2M-002	6TM-D2	Integrator Net
B	5000			P688-005	PC-100	PTE6D5	811-005	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5	811-005	6TM-D5	Integrator Net
C53	4700	500		1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid
C54	.1	600		P688-1		PTE6P1		6TM-P1	Vert. Discharge
C55	.25	400		P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C56	270	500		1468-00025	D6-271	5WST2S	GP2K-270	1FM-325	Horiz. Sync. Coupling †
C57	.0022	600		P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	Horiz. Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C58	5	1500		1469-HV-0000 05					Horiz. Feedback *
C59	.22	400		P488-22		GT4P25		4TM-P22	AFC Filter
C60	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	AFC Filter
C61	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Horiz. AFC Filter
C62	150	1000		1469-HV-0001 5					Horiz. Osc. Grid
C63	.01	600		P688-01		PTE6SI		6TM-SI	Fixed Trimmer
C64	.0022	600		P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	Horiz. Discharge
C65	390	500		1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Horiz. Sweep Coupling
C66	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C67	.25	400		P488-25		GT4P25		4TM-P25	Horiz. Output Cathode
C68	.035	1000		P1088-033					Damper Filter
C69	.035	1000		P1088-033					Damper Filter
C70	500	20000		HV20B	TV1-502				HV Filter
C71	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Decoupling *
C72	.01	600		P688-01	D6-103	PTE6SI	821-01	6TM-SI	Line Filter
C73	.01	600		P688-01	D6-103	PTE6SI	821-01	6TM-SI	Line Filter
C74	.033	1000		P1088-033		PTE16S3		MB-S3	Fixed Trimmer *

* Not used in all models.
† Items C52A, C52B, C52C, R62A, R62B and R62C are combined into one unit.
‡ Some models use 150MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAD PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	50kΩ	‡		Q11-123	AN-44-S	B-31	Brightness Control
B	Shaft			Not req.	FS-3	Not req.	Attach to R1A Per Instructions
R2A	1Meg	‡		Concentrikit B11-137 ♂	RTV-2	SBB-505	Vertical Hold Control - Front
B	50kΩ	‡		Concentrikit B11-123 ♂			Horizontal Hold Control - Rear
C	Shaft End			Concentrikit E-187 ♂			Attach Per Instructions in "Concentrikit"
R3A	10kΩ	‡		Concentrikit B11-116 ♂	RTV-1	SBB-504-S	Contrast Control - Front
B	1Meg	‡		Concentrikit B13-137 ♂			Volume Control - Rear
C	Shaft End			Concentrikit E-187 ♂			Attach Per Instructions in "Concentrikit"
D	Switch			76-1 ♂			Attach Per Instructions in "Concentrikit"
R4	2250Ω	4			RTV-9	SVS-926	Focus Control - Wire Wound - See Note 1
R5A	5000Ω	‡		Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft			Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6A	2.5Meg	‡		Q11-239	AM-84-S	AN-83	Height Control
B	Shaft			Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions
R7	3000Ω	1		WK-3000	43-3000		Threshold Control - Wire Wound

♂ Additional parts to be used with "Concentrikit".
Note 1. Some models use 5000Ω control in this application.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAD PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	3900Ω	‡		BTS-3900	Antenna Coil Shunt
R9	2200Ω 20%	‡		BTS-2200	RF Amp. Decoupling
R10	10kΩ	‡		BTS-10K	RF Coil Shunt
R11	4700Ω	‡		BTS-4700	Mixer Grid
R12	220kΩ 20%	‡		BTS-220K	Mixer Grid
R13	15kΩ 20%	‡		BTS-15K	Mixer Plate
R14	10kΩ	‡		BTS-10K	Osc. Grid
R15	4700Ω	‡		BTS-4700	Osc. Plate
R16	47kΩ 20%	‡		BTS-47K	AGC Network
R17	1000Ω	‡		BTS-1000	AGC Network
R18	1000Ω	‡		BTS-1000	AGC Network
R19	15kΩ	‡		BTS-15K	1st Video IF Amp. Grid
R20	39Ω	‡			1st Video IF Amp. Cathode
R21	1000Ω	‡		BTS-1000	1st Video IF Amp. Decoupling
R22	10kΩ 5%	‡		BTS-10K-5%	2nd Video IF Amp. Grid
R23	39Ω	‡			2nd Video IF Amp. Cathode
R24	10kΩ	‡		BTA-10K	2nd Video IF Amp. Plate
R25	1000Ω	‡		BTS-1000	2nd Video IF Amp. Decoupling
R26	150Ω	‡		BTS-150	3rd Video IF Amp. Cathode
R27	3900Ω	‡		BTA-3900	3rd Video IF Amp. Plate
R28	1000Ω	‡		BTS-1000	3rd Video IF Amp. Decoupling
R29	5800Ω 20%	‡		BTS-5800	Video Det. Diode Load
R30	27kΩ	‡		BTS-27K	AGC Network
R31	160kΩ 20%	‡		BTS-180K	AGC Network - See Note 3
R32	1Meg	‡		BTS-1Meg	AGC Network
R33	56kΩ	‡		BTS-56K	Voltage Divider
R34	470kΩ	‡		BTS-470K	Video Amp. Grid
R35	220Ω 20%	‡		BTS-220	Video Amp. Cathode
R36	3300Ω 20%	‡		BTA-3300	Video Amp. Plate
R37	1000Ω	‡		BTS-1000	Video Amp. Plate
R38	2700Ω 5%	‡		BTS-2700-5%	Contrast Control Shunt
R39	5000Ω	‡	5	1 3/4A-5000	Voltage Divider - Wire Wound
R40	100Ω 20%	‡		BTS-100	Bias Network
R41	3300Ω	‡		BTA-3300	Video Output Plate
R42	1000Ω	‡		BTS-1000	Video Output Plate
R43	330kΩ	‡		BTS-330K	Picture Tube Cathode
R44	150Ω	‡		BTS-150	Sound IF Amp. Cathode
R45	1000Ω	‡		BTS-1000	Sound IF Amp. Decoupling
R46	10kΩ	‡		BTS-10K	Limiter Grid
R47	10kΩ	‡		BTA-10K	Limiter Decoupling
R48	100kΩ	‡		BTS-100K	Disc. Diode Load
R49	100kΩ	‡		BTS-100K	Disc. Diode Load
R50	22kΩ	‡		BTS-22K	De-emphasis
R51	10Meg	‡		BTS-10Meg	AF Amp. Grid
R52	330kΩ	‡		BTS-330K	AF Amp. Plate
R53	330kΩ	‡		BTS-330K	Bias Network
R54	82kΩ	‡		BTS-82K	Output Grid
R55	180kΩ	‡		BTS-180K	Output Grid
R56	500Ω	‡	5	1 3/4A-5000	Decoupling - Wire Wound

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAD PART No.	IRC PART No.	IDENTIFICATION CODES
R57	1Meg 20%	‡		BTS-1Meg	Sync. Sep. Grid
R58	560Ω	‡		BTS-560	Sync. Sep. Cathode
R59	22kΩ	1		BTA-22K	Sync. Sep. Plate
R60	3.9Meg	‡		BTS-3.9Meg	Sync. Amp. Grid - See Note 4
R61	6800Ω	‡		BTS-6800	Sync. Amp. Cathode
R62A	22kΩ	‡		BTS-22K	Integrator
B	8200Ω	‡		BTS-8200	Integrator
C	8200Ω	‡		BTS-8200	Integrator
R63	1Meg	‡		BTS-1Meg	Vertical Osc. Grid
R64	100kΩ	‡		BTS-100K	Vertical Osc. Grid - See Note 2
R65	470kΩ	‡		BTS-470K	Vertical Osc. Plate
R66	3300Ω 20%	‡		BTS-3300	Vertical Peaking
R67	2.2Meg	‡		BTS-2.2Meg	Vertical Output Grid
R68	560Ω	‡		BTS-560	Vertical Output Cathode
R69	1800Ω	1		BTA-1800	Vertical Output Decoupling - See Note 2
R70	2.7Meg 5%	1		BTA-2.7Meg-5%	Voltage Divider - See Note 5
R71	560kΩ	‡		BTS-560K	Horizontal AFC Grid
R72	180kΩ 20%	‡		BTS-180K	Horizontal AFC Cathode
R73	100kΩ	1		BTA-100K	Horizontal AFC Cathode
R74	56kΩ	‡		BTS-56K	Horizontal AFC Plate
R75	8200Ω	‡		BTS-8200	Horizontal AFC Filter
R76	100kΩ	1		BTA-100K	Horizontal Osc. Grid
R77	27kΩ 5%	1		BTA-27K-5%	Horizontal Osc. Plate
R78	10kΩ 20%	‡		BTS-10K	Horizontal Osc. Coil Shunt
R79	22kΩ 20%	‡		BTS-22K	Horizontal Osc. Coil Shunt
R80	120kΩ 20%	‡		BTS-120K	Voltage Divider
R81	5Ω				Parasitic Suppressor - See Note 6
R82	1Meg 20%	‡		BTS-1Meg	Horizontal Output Grid
R83	100Ω	2		BW-2-100	Horizontal Output Cathode - Wire Wound
R84	8200Ω 20%	2		BTB-8200	Horizontal Output Screen
R85	150kΩ 20%	‡		BTS-150K	Horizontal Feedback Network
R86	560kΩ	‡		BTS-560K	Horizontal Feedback Network - See Note 2
R87	470kΩ	1			HV Filter - See Note 7
R88	130Ω	5		1 3/4A-125	Focus Coil Shunt - Wire Wound - See Note 2 and 8
R89 A	1500Ω	3			Voltage Divider - Wire Wound
B	15kΩ	10			Bleeder - Wire Wound
R90	5kΩ	3		BW-2-5I	Filter Network - Wire Wound - See Note 9
R91	30kΩ	1		BTA-27K	Decoupling See Note 2

† Items R62A, R62B, R62C, C52A, C52B, and C52C are combined into one unit.
Note 2. Not used in all models.
Note 3. Some models use 100kΩ resistor in this application.
Note 4. Some models use 5.6meg resistor in this application.
Note 5. Some models use 3.3 meg resistor in this application.
Note 6. Some models use 47Ω resistor in this application.
Note 7. Some models use 1 meg resistor in this application.
Note 8. Some models use 100Ω resistor in this application.
Note 9. Some models use 68Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TRAD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ① 1.95A	770VCT .250ADC	5VAC ② 3A	6.3VAC ② 7.8A SEC. 4 6.3VAC ② 1A		P-8159 ③	P-3067 ②	TP-360

② Add series resistor to reduce plate voltage.
③ Redrill mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TRAD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	172Ω	1.3kΩ		A-8121 ①	A-4000	TB0-1	Vertical Block Osc. Trans.
T3	255Ω Tap 56Ω	16Ω Tap .9Ω SEC. 2 0Ω		A-8130			Horizontal Output Trans.
T4	1.23kΩ						Vertical Output Trans.
T5A	Tap 11.3Ω 15.2Ω			DY-7			Horizontal Deflection Coil
B	58Ω			-			Vertical Deflection Coil
T6	400Ω						Focus Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRAD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	2.75kΩ	3.3Ω	350Ω	.4Ω		A-3877 ①	A-3018 ①	R0-9 ①	① Drill one new mounting hole.

TRAD MODEL T-20, A

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TRAD PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.3Ω		10J12	10A4A	
	CONE DIA.	V. C. DIA.				
SP2	9 1/2"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↶)	TRAD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.250A	48Ω	1.4 Henries		C-2326 ①	C-2991 ①	TR3300 ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TRAD PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω	0Ω			
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid and Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	1st Video IF	1.2Ω				
L7	Fil. Choke	0Ω				
L8	2nd Video IF - Sound Take-Off	.2Ω				
L9	3rd Video IF	.3Ω				
L10	Sound Trap	.1Ω	0Ω			
L11	4th Video IF	.3Ω				Adj. Channel Sount Trap Included in Later Models
L12	4.5MC Trap	1.9Ω				
L13	Peaking	5.3Ω			19-1921 *	120 Microhenries (Blue Dot-Wound on 22KΩ Resistor)
L14	Peaking	8Ω			19-1922	250 Microhenries (Green Dot)
L15	Peaking	5.3Ω			19-1921 *	120 Microhenries (Blue Dot-Wound on 22KΩ Resistor)
L16	Peaking	4.4Ω			19-1920	93 Microhenries (Red Dot)
L17	Peaking	5.3Ω			19-1921 *	120 Microhenries (Blue Dot-Wound on 22KΩ Resistor)
L18	Peaking	4.4Ω			19-1920	93 Microhenries (Red Dot)
L19	Sound IF	.3Ω				
L20	Disc. Trans	.1Ω	.1Ω			
L21	Horiz. Osc. Trans.	85Ω	52Ω			
L22	Horiz. Lin.	35Ω				
L23	Width Coil					Coil Replaced by .05MFD Capacitor in Some Sets.

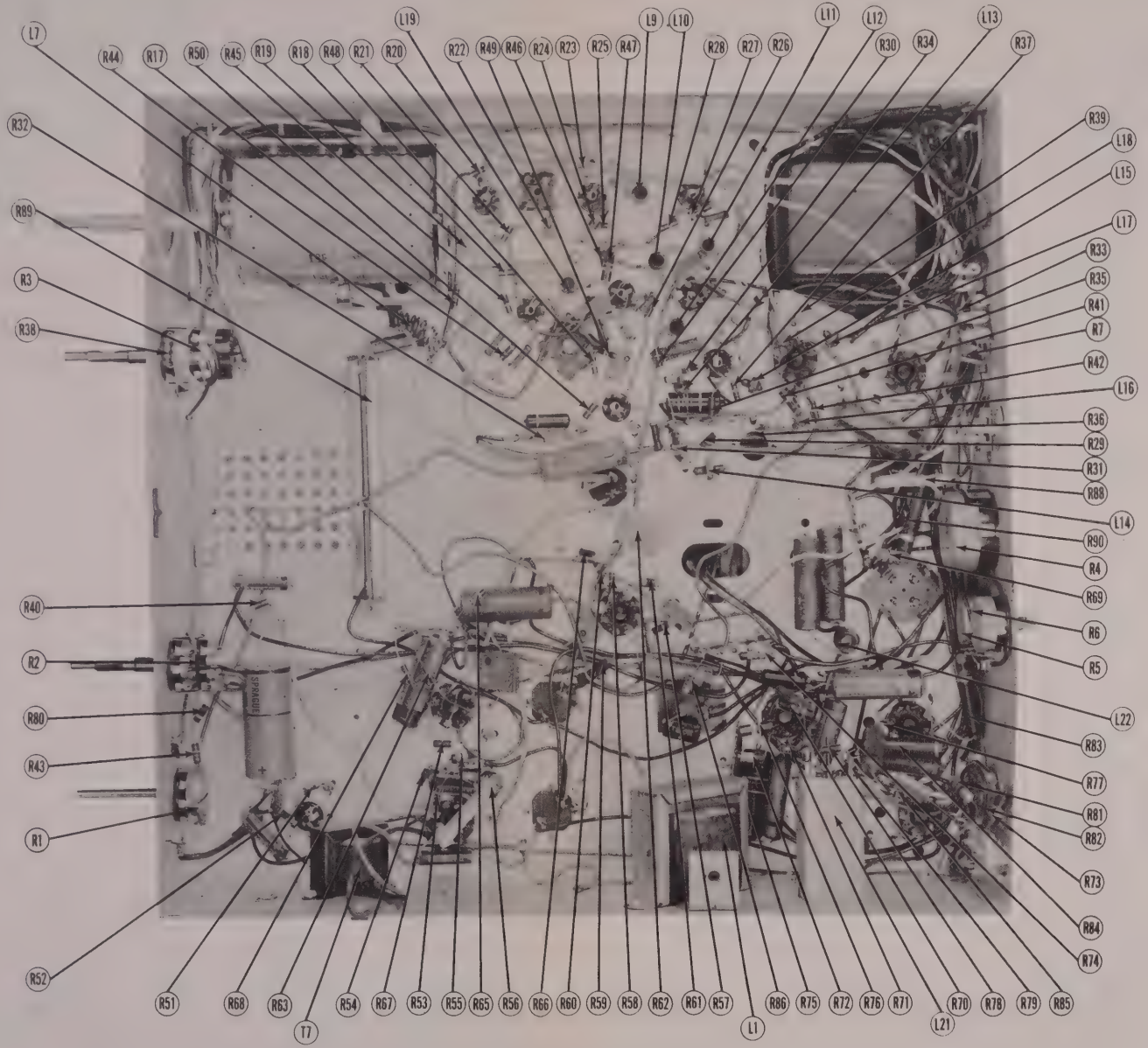
* Parallel with 22KΩ Resistor

FUSES

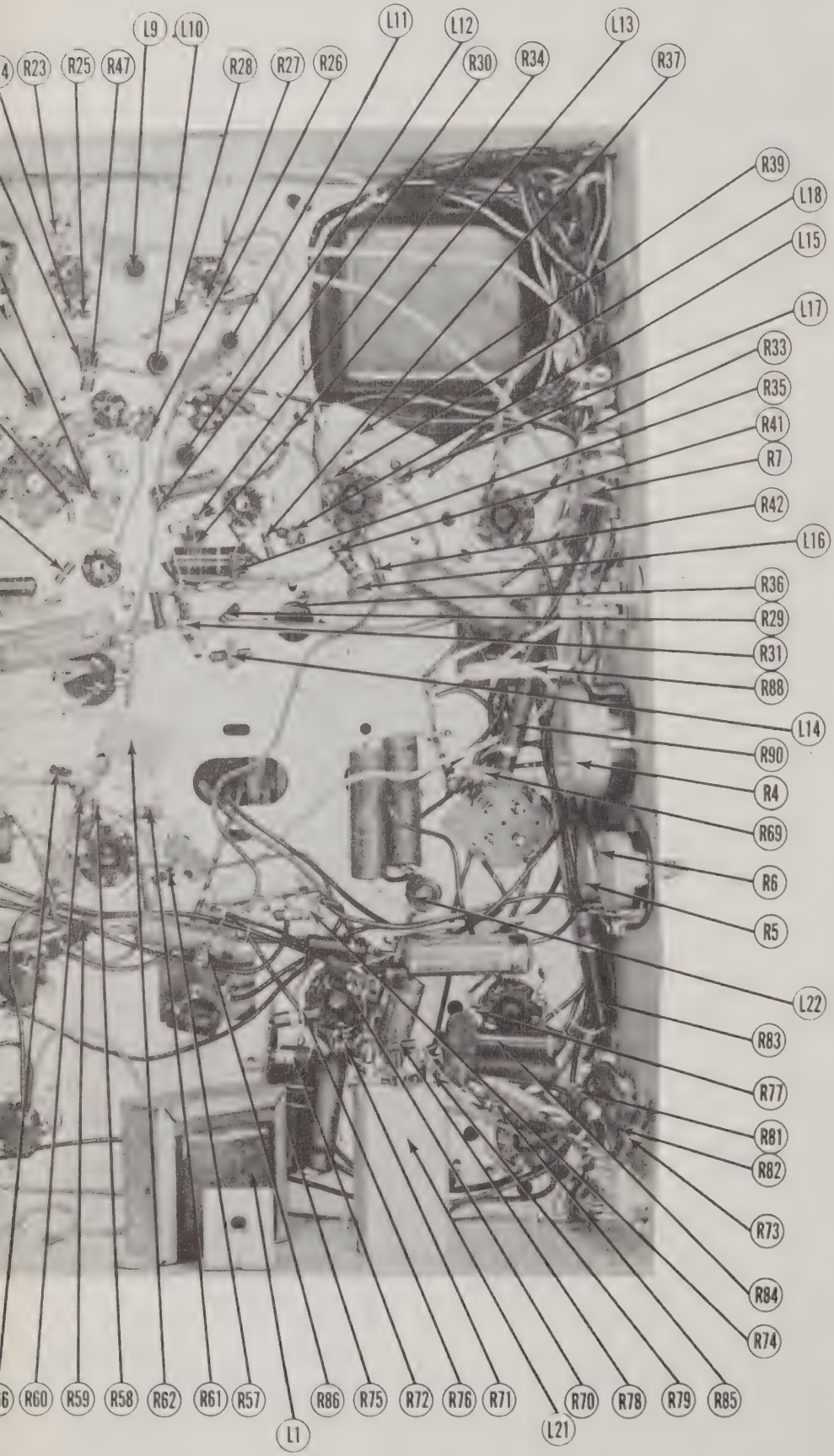
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			TRAD PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	.250			312.250	357001	

MISCELLANEOUS

ITEM No.	PART NAME	TRAD PART No.	NOTES
M2	RF Tuner		
M3	Crystal		Video Det. 1N-34
M4	Switch		TV-Phono
M5	Ion Trap		
B3, B4, B5	Trimmer		3 Sections (Horizontal Lock 15-160MMF), (Horizontal Freq. 50-360MMF) and (Horizontal Drive 50-360MMF)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



OR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

WESTINGHOUSE MODELS H-639T17, H-640T17, A, H-641K17, A, H-646K17, H-647K17, H-654T17

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL H-640T17

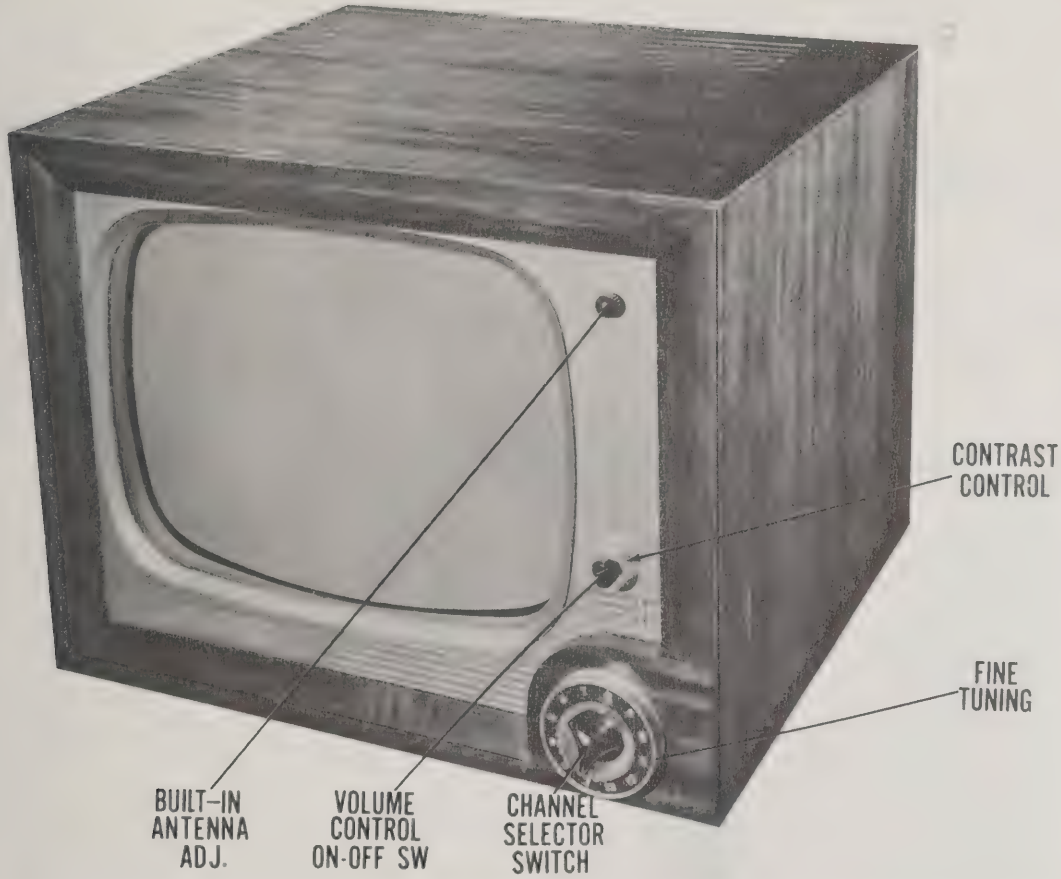
WESTINGHOUSE MODELS H-639T17, H-640T17, A, H-641K17, A, H-646K17, H-647K17, H-654T17

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-51 SET 133 FOLDER 15

WESTINGHOUSE MODELS H-639T17, H-640T17, H-641K17, A, H-646K17, H-647K17, H-654T17



WESTINGHOUSE MODEL H-640T17

TRADE NAME	Westinghouse, Models H-639T17 (Ch. V-2192, -1), H-640T17 (Ch. V-2175-3, -4), H-640T17A (Ch. V-2192), H-641K17 (Ch. V-2175-1, -5), H-641K17A (Ch. V-2192-1), H-646K17 (Ch. V-2192), H-647K17 (Ch. V2175-3), H-654T17 (V-2175-3, -4, V-2192, -1)
MANUFACTURER	Westinghouse Electrical Corp., Home Receiver Div., Sunbury, Pa
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC - 60 Cycle — RATING 1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

INDEX

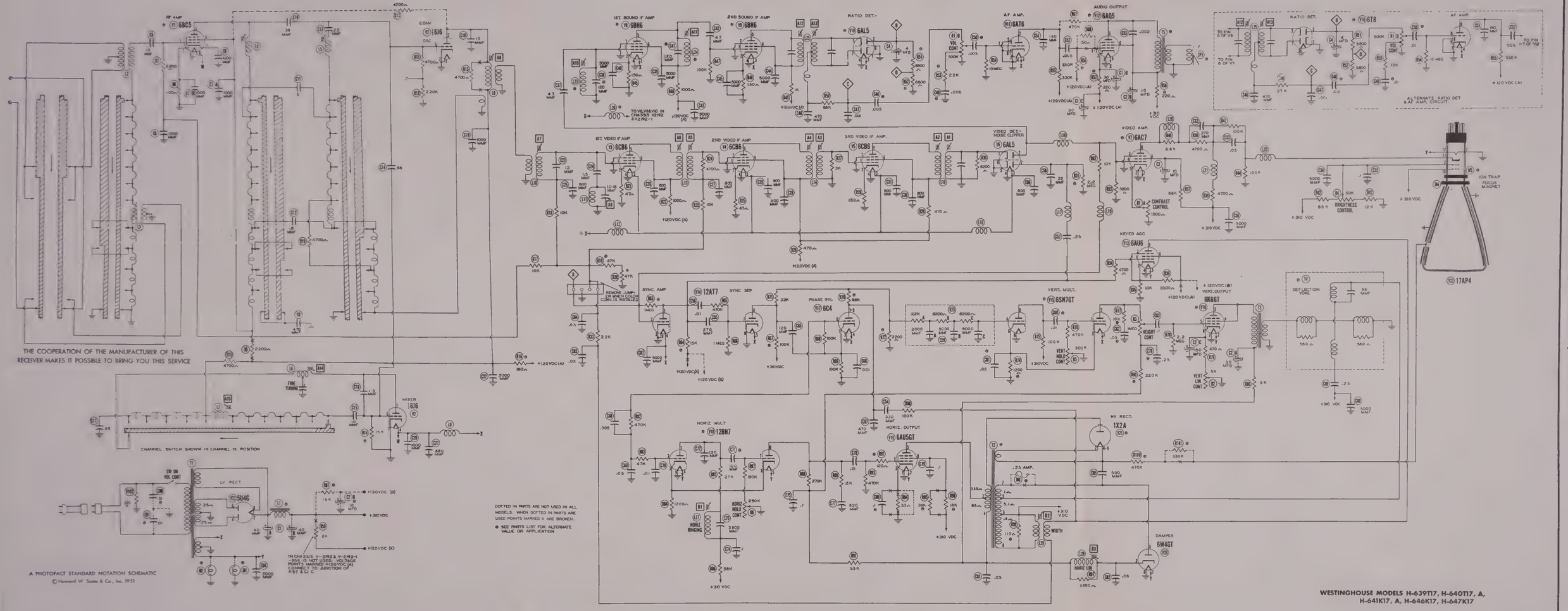
Alignment Instructions 6, 7
Disassembly Instructions 17
Horizontal Sweep Circuit Adjustments 17
Parts List And Description 14, 15, 16
Photographs
- Cabinet - Rear View 17
- Capacitor And Alignment Identification 4, 9
- Chassis - Top View 3
- RF Tuner 10
- Resistor And Inductor Identification 11, 18

Schematic (Main) 2
Schematic (Alternate Tuner) 7
Tube Placement Chart 5
Voltage And Resistance Measurements 8

WESTINGHOUSE MODELS H-639T17, H-640T17, A, H-641K17, A, H-646K17, H-647K17, H-654T17

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

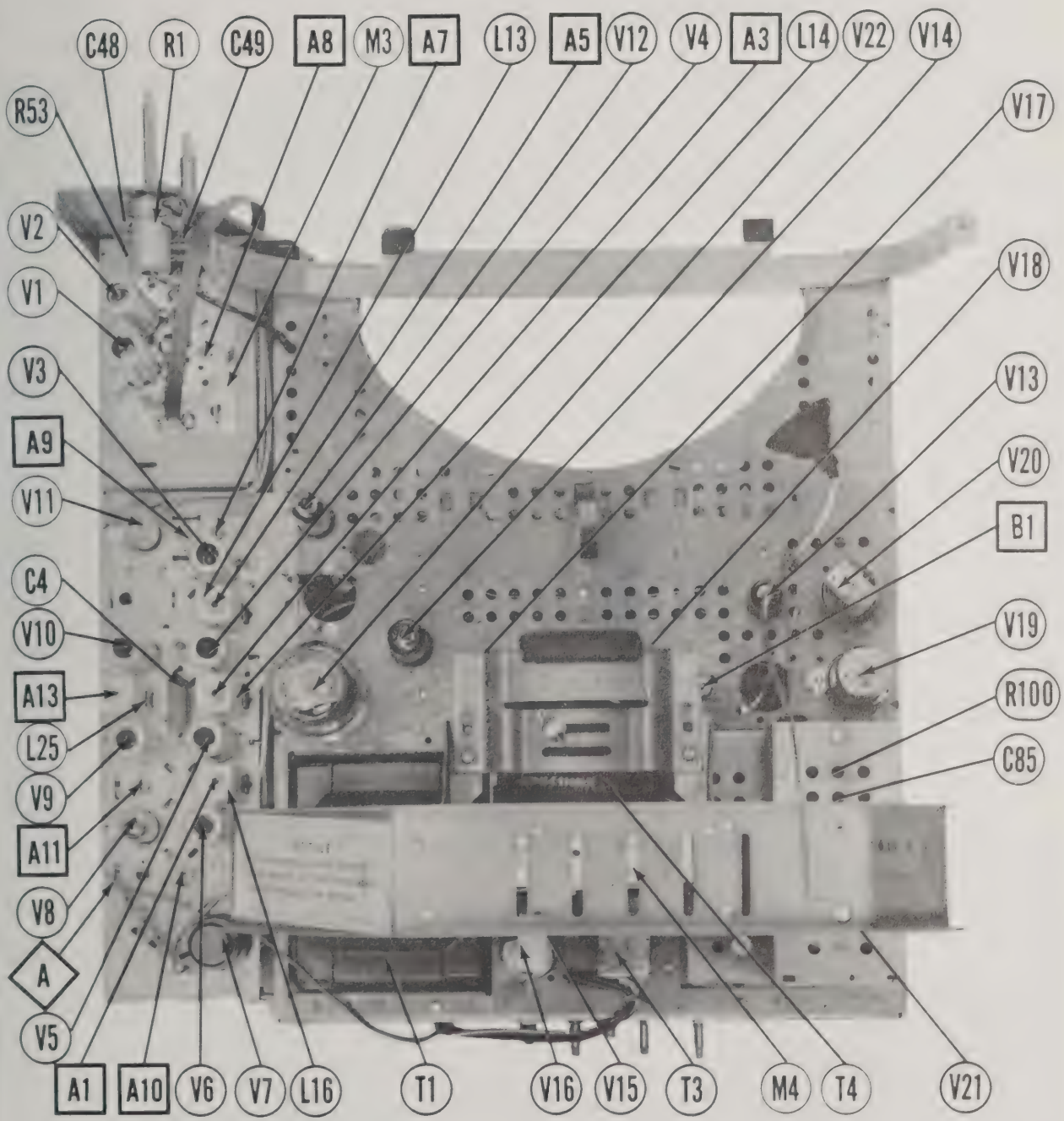
IN CHA 5S1S V-2Y2 & V-2Y2-4 P804 IS NOT USED. VOLTAGE MARKED +120VDC (A) CONNS TO JUNCTION OF R57 & C1 20

A PHOTOFACT STANDARD NOTATION SCHEMATIC

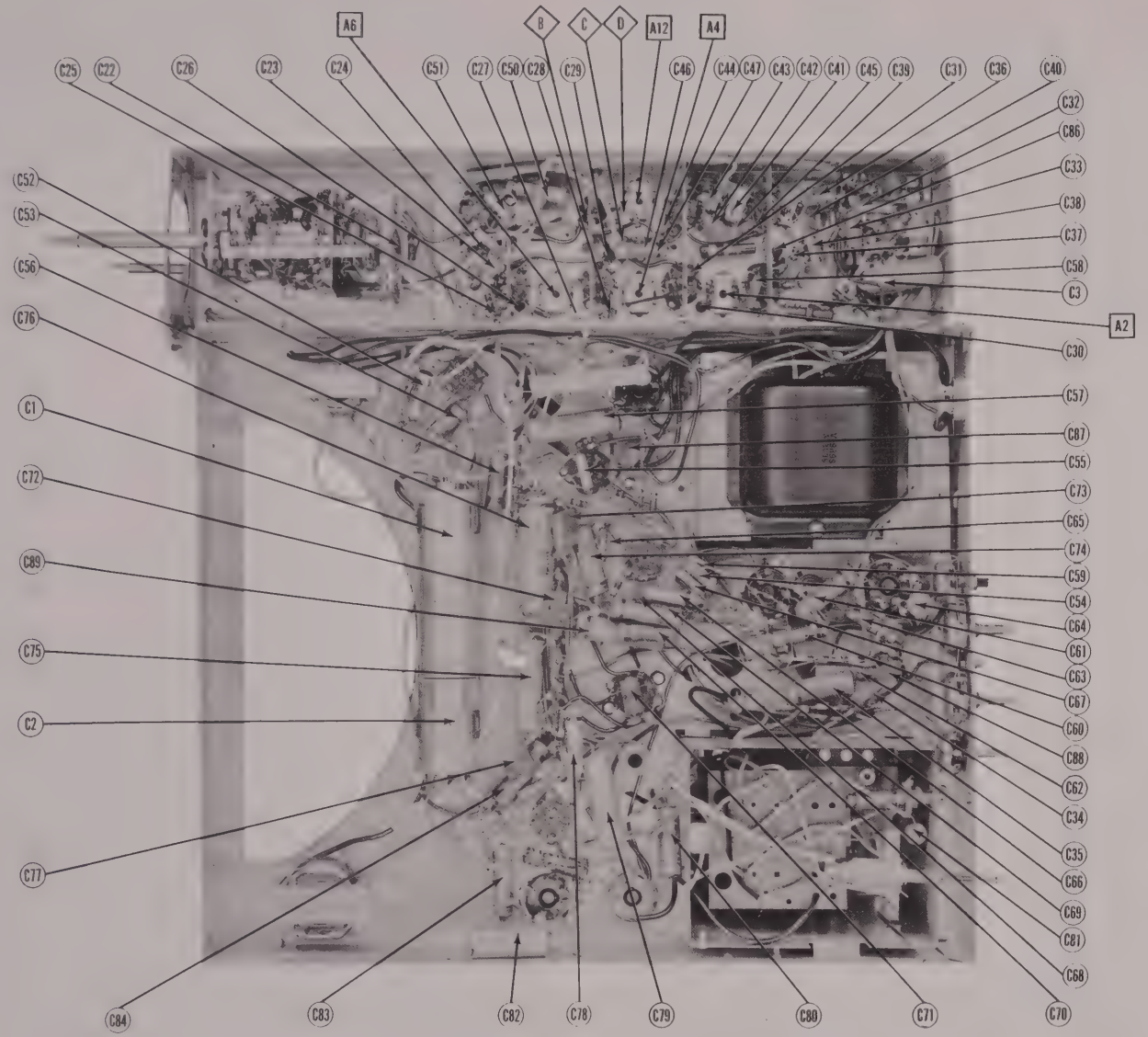
© Howard W. Sams & Co., Inc. 1951

WESTINGHOUSE MODELS H-639T17, H-640T17, A, H-641K17, A, H-646K17, H-647K17

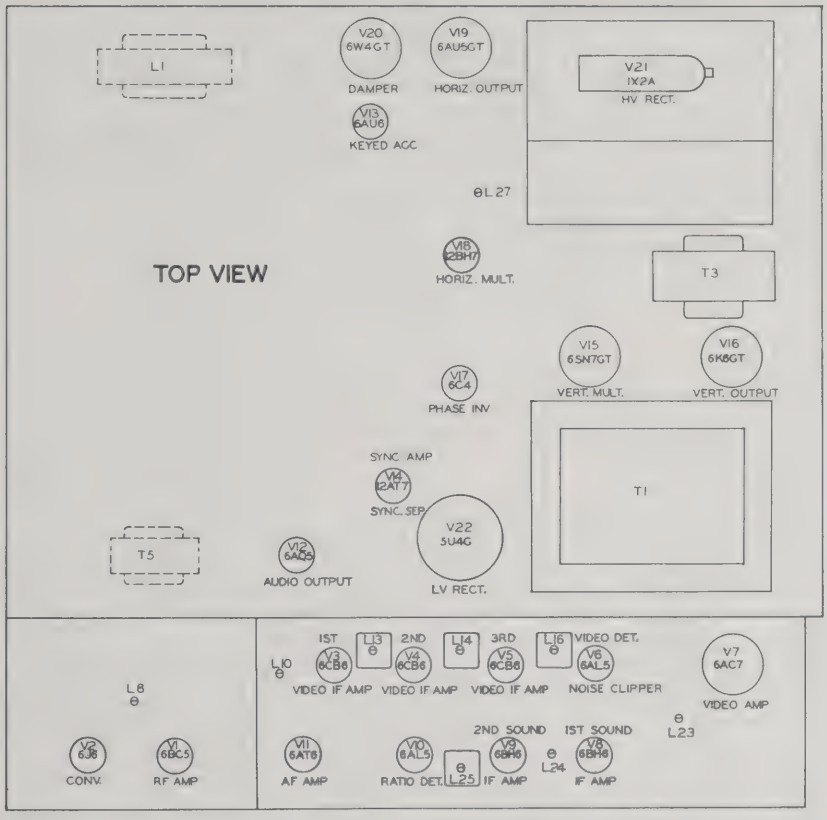
WESTINGHOUSE MODELS H-639T17, H-640T17, A, H-641K17, A, H-646K17, H-647K17

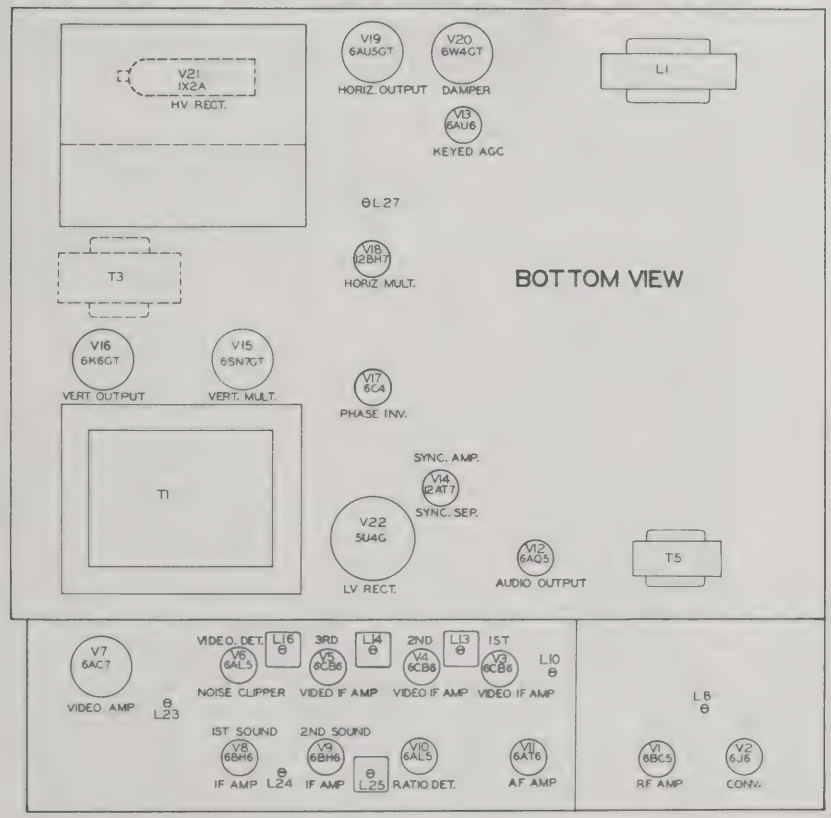


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACI[illegible] AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and eliminate the possibility of erroneous indications.

Connect the negative lead of a 3 volt battery to the junction of R18 and R19, connect the positive lead to chassis.

Connect a 47KΩ isolating resistor in series with the vertical input lead of the oscilloscope and a 470MMF capacitor across the vertical input terminals.

During alignment it is necessary to detune the primary winding of the transformer feeding the grid of the tube to which the sweep generator is connected. This may be done by clipping an alligator clip to the plate, (pin 5), of the preceeding tube. The stray capacity thus added will sufficiently detune the transformer. CAUTION B+.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to Pin 1 (grid) of 6CB6 (V5). Low side to chassis.	44MC (10MC SWP)	41.25MC 45.75MC	Any	Vert. amp. to Point Ⓐ. Low side to chassis.	A1, A2	Adjust for response curve similar to figure 1.
2.	"	High side to Pin 1 (grid) of 6CB6 (V4). Low side to chassis.	"	"	"	"	A3, A4	Adjust for response curve similar to figure 2.
3.	"	High side to Pin 1 (grid) of 6CB6 (V3). Low side to chassis.	"	"	"	"	A5, A6	Adjust for response curve similar to figure 3.
4.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	"	"	"	"	A7, A8	Turn A9 fully clockwise. Adjust A7 and A8 for response curve similar to figure 4.
5.	"	"	"	"	"	"	A9	Adjust for MINIMUM marker indication at the 41.25MC point on response curve.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to Point A. Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to Point Ⓑ. Common to chassis.	A10, A11, A12	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point Ⓒ. Common to Point Ⓓ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.001MFD	High side to Point A. Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. to Point Ⓑ. Low side to chassis.	A10, A11, A12	Disconnect stabilizer capacitor C4. Adjust for maximum amplitude and symmetry as per figure 5.
7.	"	"	"	"	"	Vert. amp. to Point Ⓒ. Low side to chassis.	A13	Reconnect capacitor C4. Adjust A13 so 4.5MC occurs at center of crossover lines as per figure 6. SLIGHTLY retouch A12 for max. amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT (TUNERS NO. V9886-5 AND V9886-6)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point Ⓐ. Low side to chassis.	A14	Adjust to place sound marker as shown in figure 7. The video marker should be at 50%.
9.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all high band channels to see that the markers can be properly placed well within the range of the fine tuning control. If not make compromise adjustment of A14.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
10.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A15	Adjust to place sound marker as shown in figure 7. The video markers should be at 50%.
11.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check all low band channels to see that the markers can be properly placed well within the range of the fine tuning control. If not make compromise adjustment of A15.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

FIG. 1

FIG. 2

FIG. 3

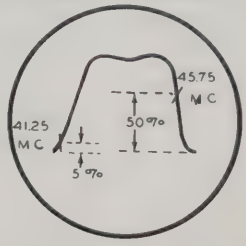


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT (TUNER NO. V10297-1)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point (A). Low side to chassis.	A16	Adjust to place sound marker as shown in figure 7. The video marker should be at 50%
13.	"	"	207MC (10MC SWP)	205.25MC 207.75MC	12	"		Check all high band channels to see that the markers can be properly placed well within the range of the fine tuning control. If not, make compromise adjustment of A16.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
14.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A17	Adjust to place markers as shown in figure 7.
15.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check marker positions on channel 5. If necessary make compromise adjustment of A17.
16.	"	"	69MC (10MC SWP)	67.25MC 71.75MC	4	"	A18	Adjust to place markers as shown in figure 7.
17.	"	"	63MC (10MC SWP)	61.25MC 65.75MC	3	"		Check marker positions on channel 3. If necessary make compromise adjustment of A18.
18.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2	"		Adjust to place markers as shown in figure 7.

THE RF AND MIXER PORTIONS OF THESE TUNERS HAVE BEEN PROPERLY ALIGNED AT THE FACTORY AND ARE VERY STABLE. ALIGNMENT OF THESE PORTIONS SHOULD NOT BE REQUIRED IN THE FIELD.

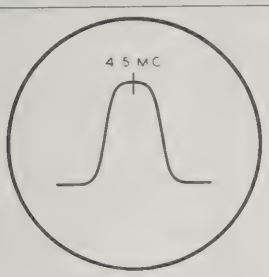


FIG. 5

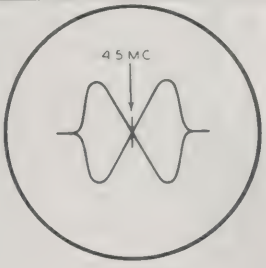


FIG. 6

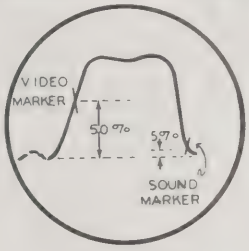
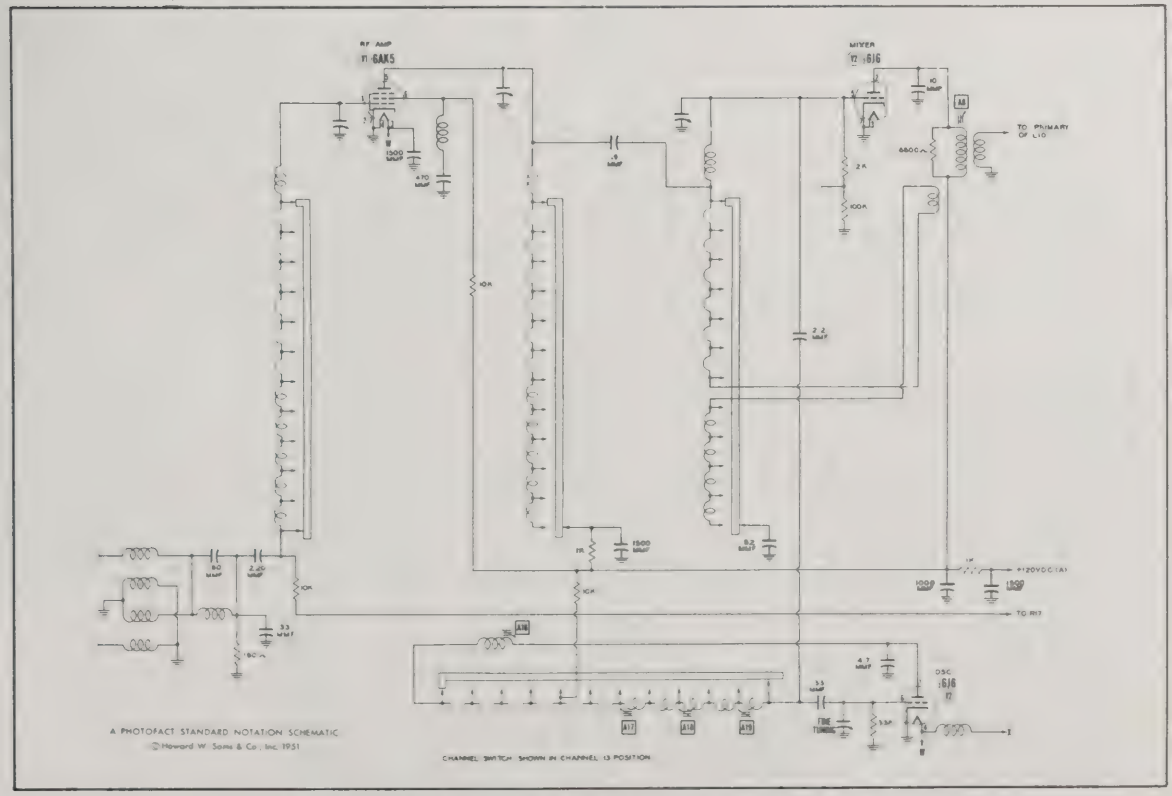


FIG. 7



ALTERNATE TUNER SCHEMATIC

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-1.3VDC	.3VDC	0V	6.3VAC	105VDC	105VDC	.3VDC		
V 2	6J6	70VDC	115VDC	0V	6.3VAC	-1.3VDC	‡-2.7VDC	0V		
V 3	6CB6	-1.3VDC	.5VDC	6.3VAC	0V	105VDC	105VDC	0V		
V 4	6CB6	-1.3VDC	.5VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 5	6CB6	0V	1.4VDC	6.3VAC	0V	105VDC	105VDC	0V		
V 6	6AL5	0V	-.4VDC	5.3VAC	0V	0V	0V	-.2VDC		
V 7	6AC7	0V	0V	0V	-.2VDC	5.6VDC	255VDC	6.3VAC	260VDC	
V 8	6BH6	0V	.9VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 9	6BH6	0V	.9VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 10	6AL5	0V	-.1VDC	6.3VAC	0V	-.3VDC	0V	-.3VDC		
V 11	6AT6	-.4VDC	0V	6.3VAC	0V	0V	0V	45VDC		
V 12	6AQ5	▲0V	▲7.7VDC	0V	6.3VAC	▲160VDC	▲175VDC	▲0V		
V 13	6AU6	60VDC	90VDC	6.3VAC	0V	-1VDC	120VDC	90VDC		
V 14	12AT7	60VDC	.2VDC	0V	6.3VAC	6.3VAC	45VDC	-.5VDC	0V	0V
V 15	6SN7GT	-25VDC -30VDC	150VDC 135VDC	3.6VDC	3.3VDC	35VDC	3.6VDC	6.3VAC	0V	
V 16	6K6GT	0V	6.3VAC	450VDC 250VDC	450VDC 250VDC	0V	0V	0V	55VDC 15VDC	
V 17	6C4	1.8VDC	0V	0V	6.3VAC	1.8VDC	1.5VDC	2.5VDC		
V 18	12BH7	65VDC	.6VDC .4VDC	5.4VDC 4.4VDC	6.3VAC	6.3VAC	120VDC	-6.5VDC -10 VDC	5.4VDC 4.4VDC	0V
V 19	6AU5GT	-25VDC	6.3VAC	3VDC	0V	*	0V	0V	175VDC	
V 20	6W4GT	0V	0V	470VDC	0V	300VDC	0V	6.3VAC	0V	
V 21	1X2A	* DO NOT MEASURE								
V 22	5U4G	0V	320VDC	120VDC	320VAC	0V	320VAC	0V	320VDC	
V 23	17AP4	0V	150VDC 30VDC	PIN 10 310VDC	PIN 11 130VDC	PIN 12 6.3VAC				

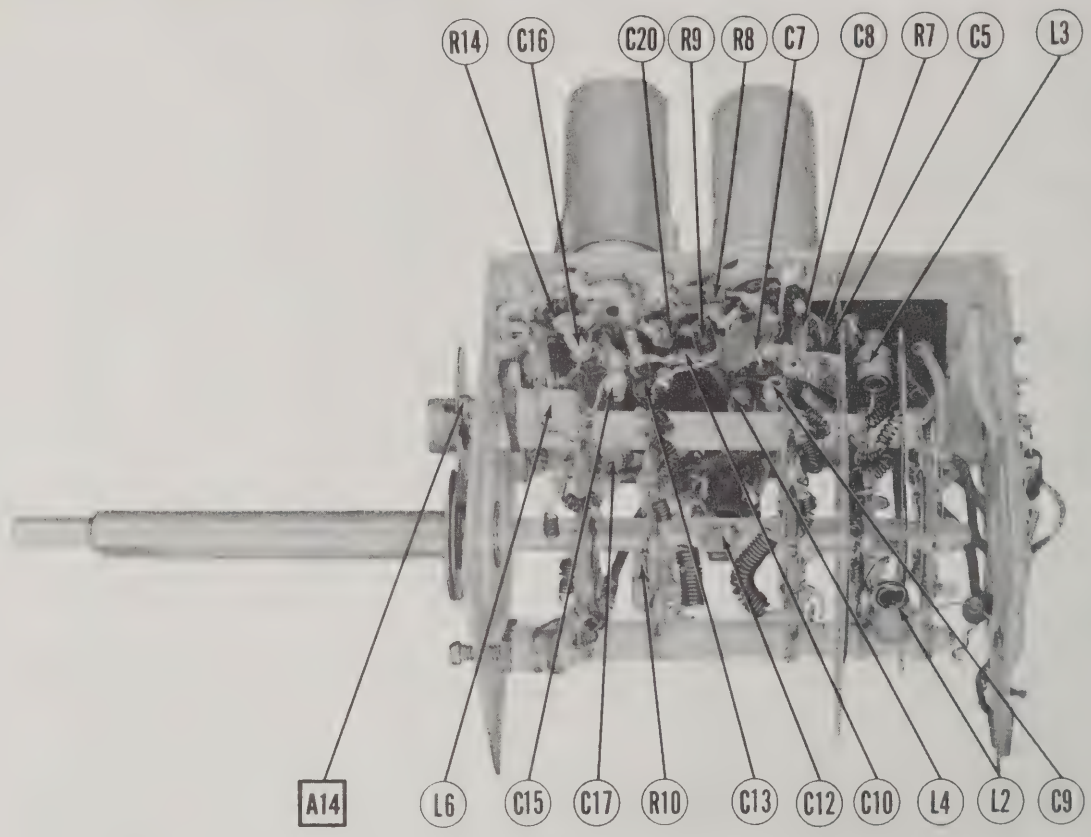
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
‡ TAKEN WITH VACUUM TUBE VOLTMETER
▲ MEASURED FROM JUNCTION OF C1C AND R57
* DO NOT MEASURE

RESISTANCE READINGS

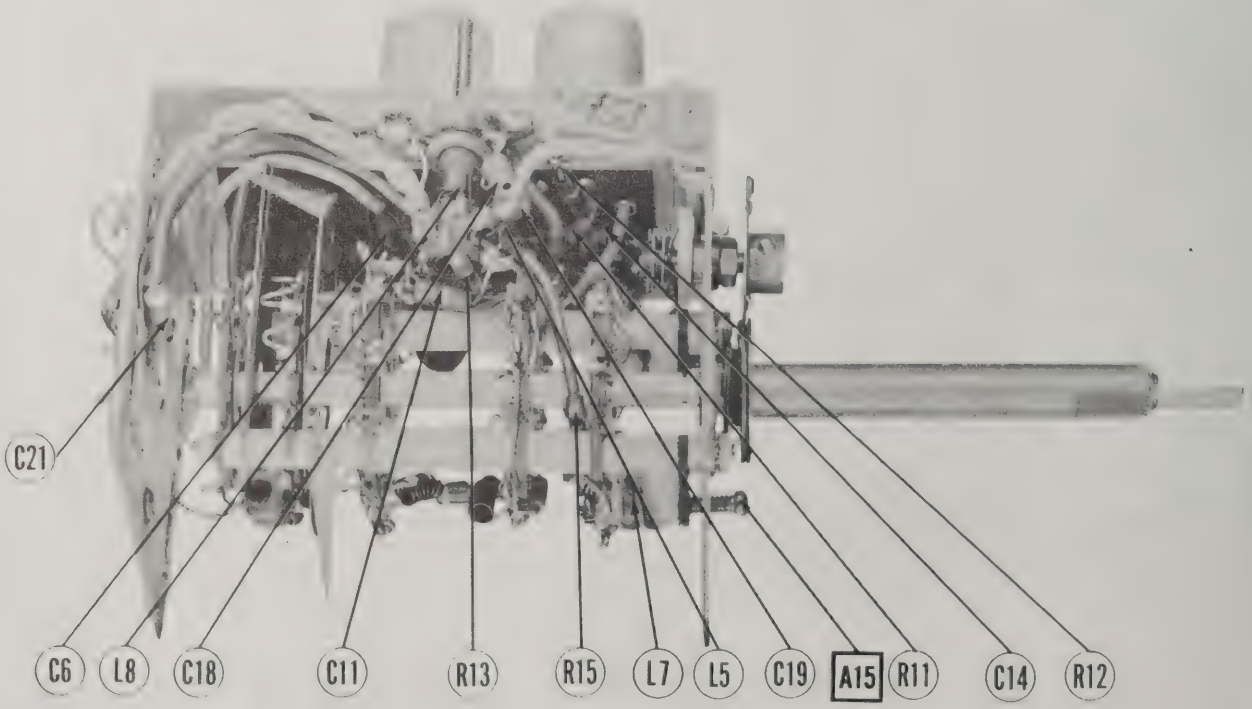
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	125KΩ	100Ω	0Ω	.1Ω	▲2.3KΩ	▲2.3KΩ	100Ω		
V 2	6J6	▲4.8KΩ	▲180Ω	0Ω	.1Ω	225KΩ	15KΩ	0Ω		
V 3	6CB6	105KΩ	47Ω	.1Ω	0Ω	▲1KΩ	▲1KΩ	0Ω		
V 4	6CB6	105KΩ	47Ω	.1Ω	0Ω	▲470Ω	▲470Ω	0Ω		
V 5	6CB6	.5Ω	150Ω	.1Ω	0Ω	▲940Ω	▲940Ω	0Ω		
V 6	6AL5	.4Ω	2.2Meg	1.8Ω	0Ω	0Ω	0Ω	5.6KΩ		
V 7	6AC7	0Ω	0Ω	0Ω	5.6KΩ	1.5KΩ	†68KΩ	.1Ω	†10KΩ	
V 8	6BH6	.8Ω	150Ω	.1Ω	0Ω	▲1KΩ	▲1KΩ	0Ω		
V 9	6BH6	100KΩ	150Ω	.1Ω	0Ω	▲1KΩ	▲1KΩ	0Ω		
V 10	6AL5	0Ω	13KΩ	.1Ω	0Ω	Inf.	0Ω	Inf.		
V 11	6AT6	10Meg	0Ω	.1Ω	0Ω	0Ω	0Ω	▲330KΩ		
V 12	6AQ5	330KΩ	▲220Ω	0Ω	.1Ω	†565Ω	†260Ω	330KΩ		
V 13	6AU6	25KΩ	7KΩ	.1Ω	0Ω	115KΩ	9KΩ	7KΩ		
V 14	12AT7	▲15KΩ	15KΩ	0Ω	.1Ω	.1Ω	†30KΩ	1Meg	0Ω	0Ω
V 15	6SN7GT	470KΩ 1Meg	#1.2Meg	1.2KΩ	40KΩ	†100KΩ	1.2KΩ	.1Ω	0Ω	
V 16	6K6GT	0Ω	.1Ω	#5.6KΩ	#5.6KΩ	2.2Meg	Inf.	0Ω	5.5KΩ 470Ω	
V 17	6C4	70KΩ	Inf.	0Ω	.1Ω	70KΩ	200KΩ	100KΩ		
V 18	12BH7	†85KΩ	715KΩ	1.2KΩ	.1Ω	.1Ω	#300KΩ	150KΩ 400KΩ	1.2KΩ	0Ω
V 19	6AU5GT	470KΩ	.1Ω	33Ω	Inf.	#85Ω	Inf.	0Ω	†12KΩ	
V 20	6W4GT	Inf.	Inf.	130KΩ	Inf.	†45Ω	Inf.	.1Ω	0Ω	
V 21	1X2A	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #640Ω
V 22	5U4G	0Ω	20KΩ	▲0Ω	25Ω	Inf.	25Ω	Inf.	20KΩ	
V 23	17AP4	0Ω	12KΩ 38KΩ	PIN 10 †40Ω	PIN 11 100KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
▲ MEASURED FROM JUNCTION OF C1C, R57
† MEASURED FROM PIN 2 OF V22
# MEASURED FROM PIN 3 OF V20

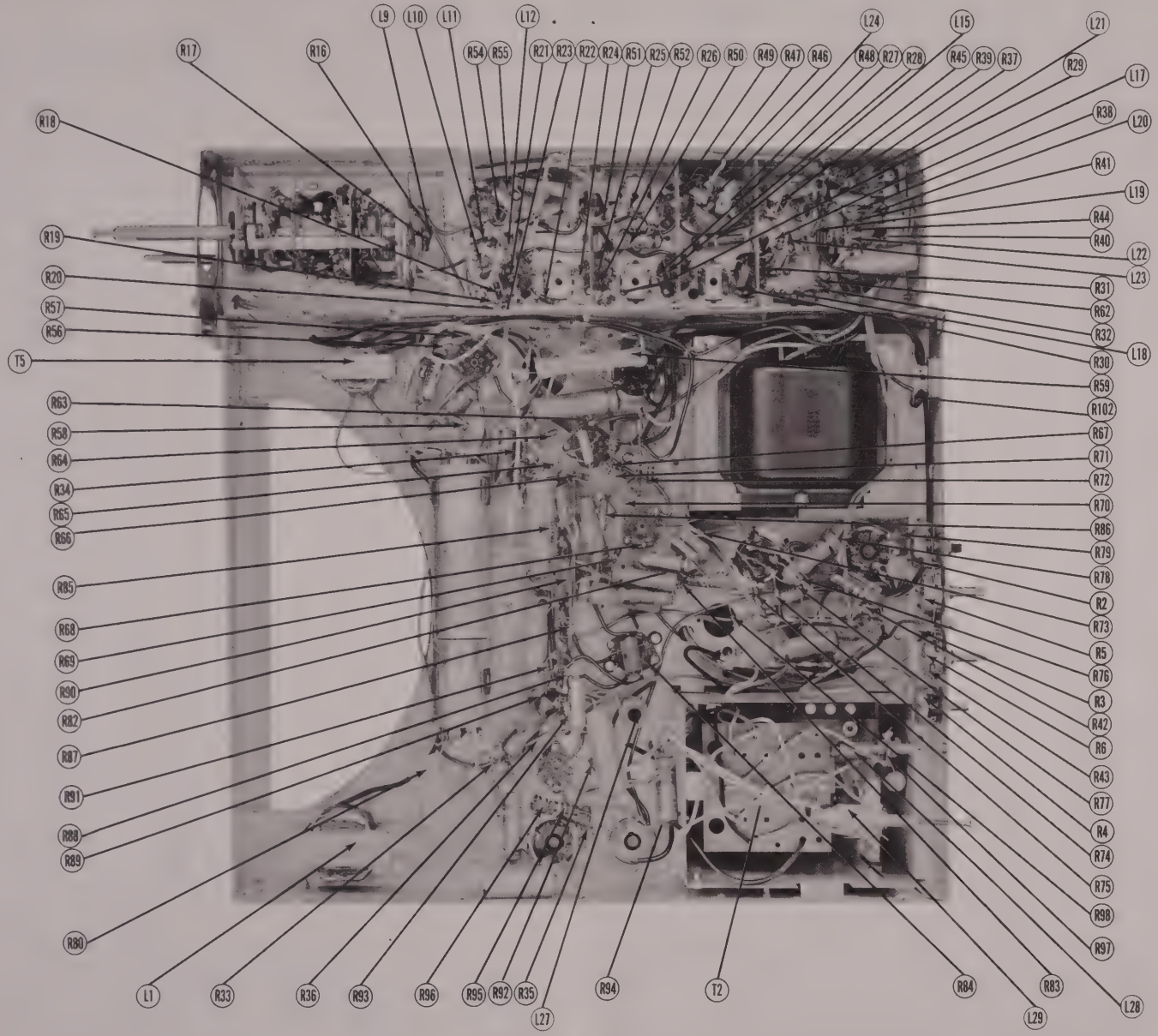
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PRODUCTION CHANGES

CHASSIS PRODUCTION CHANGES

The schematic diagram of the V-2175-1, -3, -4, and -5 chassis, has been altered as follows:

1. In some chassis , an 800MMF capacitor is connected between the heater (pin 3) of the 6CB6 1st I-F amplifier tube and ground. If video I-F oscillation appears in a chassis containing this capacitor, the capacitor should be disconnected to stop the oscillation.

2. In some chassis, two 33, 000 ohm resistors connected in parallel are used in place of R51 and R52 across pins #2 and #7 of the 6T8 ratio detector. In these chassis, alignment point "D" is not accessible. Therefore, it will be necessary to connect two 100, 000 ohm resistors, the resistances of which are equal within 5 per cent, in series across pins #2 and #7 to provide the mid-point "D" when aligning the sound I-F section. The two 100, 000 ohm resistors should be removed after alignment is completed.

3. With some deflection yokes stamped V-10045-1, another 56MMF capacitor is added in series with the 56MMF capacitor across one section of the horizontal deflection winding. This provides a total effective capacitance of 28MMF rather than 56MMF. The purpose of the change is to eliminate "ringing lines" which are white, vertical lines on the left side of picture.

4. To increase the range of the vertical hold control, R76 in the pin #7 grid circuit of the vertical multivibrator is changed to 330, 000 ohms.

DEFLECTION CIRCUIT INFORMATION

CHANGES REQUIRED WITH VARIOUS YOKE AND TRANSFORMER COMBINATIONS

Several different deflection yokes and several different horizontal output transformers are used in the V-2175-1, -3, -4 and -5 chassis. To provide correct vertical and horizontal deflection with each combination of deflection yoke and output transformer, various circuit changes are made depending on the combination in use.

The various deflection yokes used in these chassis are identified by the markings V-10045-1, V-10045-3 and V-10045-4. Markings on the various horizontal output transformer employed are: V-9904 with a red dot, V-9904 with a blue dot, F & W V-9904, V9904-1 with a code number beginning with 294, and V-10204-1. Any combination of these yokes and transformers can be used except that a transformer stamped V-9904 with a red dot should not be used with a yoke stamped V-10045-3. This particular combination may not provide sufficient width at low line voltages.

The circuits and component values that vary from one combination of yoke and transformer to another are as follows:

1. YOKE CONNECTION - With some combinations, the horizontal winding of the deflection yoke is connected to terminal #5 of the horizontal output transformer as shown on the schematic, and with other combinations it is connected to terminal #7. This connection affects the picture width, picture linearity, and plate dissipationof the horizontal output tube. The desired connections for certain combinations are listed in the next section entitled PREFERRED CIRCUITS. In general, yokes marked V-10045-3 or V-10045-4 should be connected to terminal #5, and a yoke marked V-10045-1 should be connected to terminal #7. These connections provide the correct impedance match. However, it is sometimes necessary to connect a yoke marked V-10045-1 to terminal #5 for correct horizontal linearity.

2. HV FILTER CAPACITOR RETURN - The lower end of the HV filter capacitor(C85) may be returned to one of three points: terminal #7 of the horizontal output transformer as shown on the schematic, terminal #5 of the transformer, or chassis ground. This connection affects the HV applied to the CRT anode and as a result the height and width of the picture. Maximum height and width is obtained with the capacitor returned to ground; less height and width is obtained with the capacitor returned to terminal #5: and the smallest picture results when the capacitor is re-returned to terminal #7. This connection also affects the picture brightness, which decreases as the picture size is increased.

3. WIDTH CONTROL SHUNT (R99) - The schematic diagram shows a 110 ohm resistor (R99) connected in parallel with the width control (T29). This resistor is omitted in some chassis. With the resistor in the circuit, the picture width is less than when it is omitted. In addition to its effect on the overall picture width, this resistor affects the horizontal linearity. Inserting the resistor causes the left side of the picture to compress in relation to the right side, and vice versa. R99 is not normally used with horizontal output transformers stamped V-10204-1.

4. YOKE RETURN CAPACITOR (C89) - In some chassis, the value of C89 in the return lead of the deflection yoke horizontal winding is 0.1MFD rather than 0.25 MFD as shown on the sbhematic. The lower value of capacitance reduces the overall reactance in the circuit, allowing greater horizontal deflection current to flow and increasing the picture width.

5. HORIZONTAL OUTPUT BIAS NETWORK - The bias network (R94 and C80) in the cathode circuit of the horizontal output tube is not used in some chassis. Instead, the cathode is connected directly to ground. This network affects chiefly the horizontal linearity of the picture. Best horizontal linearity will usually be obtained with the network omitted, but it may be necessary in some cases to insert the network to remove a vertical line that may appear approximately three inches or more from the left side of the picture.

6. HORIZONTAL MV PLATE LOAD (R88) - In some chassis containing a V-10045-1 yoke and a V-10204-1 horizontal output transformer, R88 in the pin #6 plate circuit of the horizontal multivibrator is 330, 000 ohms rather than 270, 000 ohms. The change eliminates a vertical line that may appear approximately three inches or more from the left side of the picture with this particular combination of yoke and transformer. R88 should be 270, 000 ohms with any other combination of yoke and transformer to prevent excessive power dissipation in the horizontal output tube.

7. HORIZONTAL MV PLATE DROPPING RESISTOR (R86) - In some chassis containing a V-10045-3 or V-10045-4 yoke and a V-10204-1 transformer, improved horizontal synchronization is obtained by adding a 33, 000 ohm, 1 watt resistor (RC30AE333K) in parallel with R86 in the plate supply line to the pin #1 plate of the horizontal multivibrator. This reduces the effective resistance of R86 to approximately 21, 000 ohms.

8. BOOSTED VOLTAGE FILTER CAPACITOR (C81) - In chassis that contain a V-10204-1 horizontal output transformer, C81 which is connected to terminal # 4 of the transformer must be . 06MFD rather than . 03MFD. With the V-9904 transformers, C81 must be . 03MFD. These values are important for correct operation of the voltage-boost circuit.

9. VERTICAL DISCHARGE CAPACITOR (C62) - In some chassis containing a V-10045-1 yoke and a 6K6 or 6V6 vertical output tube, C62 in the pin #6 plate circuit of the vertical multivibrator id . 03MFD rather than . 05MFD. This capacitor has an effect on the picture height, greater height being obtained with the lower value of capacitance. Note, however, that the vertical linearity is best and the height is sufficient if C62 is . 05MFD when a 6W6 vertical output tube is used or if a yoke than V-10045-1 is used.

10. VERTICAL DISCHARGE RESISTOR (R77) - When C62 is . 03MFD as explained in the preceeding paragraph, R77 in the pin #6 plate circuit of the vertical multivibrator is 3900 ohms rather than 10, 000 ohms. This resistor has a decided effect on the vertical linearity. In chassis that use 6W6 vertical output tube or a deflection yoke other than V-10045-1, R77 should be one of three values: 10, 000 ohms, 8200 ohms, or 5600 ohms. Best linearity with correct height is usually obtained with a resistance of 8200 ohms, although one of the other values may be required in some cases to eliminate a vertical fold-over of the top of the picture.

11. VERTICAL OUTPUT DECOUPLING RESISTOR (R80) - In some chassis that contain a V-10045-1 deflection yoke, the plate decoupling resistor (R80) for the vertical output stage is 470 ohms 1 watt rather than 5000 ohms 5 watts, and it is connected to the 330 volt B plus line rather than to terminal #4 of the horizontal output transformer. This change does not affect the operation of the circuit; its purpose is to insure that the voltage across the vertical output plate decoupling capacitor(C2A) never exceeds the rating of the capacitor. Note that this change is related to the change described in the following paragraph.

12. HORIZONTAL OUTPUT SCREEN DROPPING RESISTORS (R95 and R96) - In chassis that have R80 connected to the 330 volt B plus line as described in the preceeding paragraph, the horizontal output screen dropping resistance (R95 and R96) is changed in value, and it is connected to the boosted voltage (terminal #4 of the horizontal output transformer) rather than to the 330 volt B plus line. The resistance value used depends on the horizontal output transformer. When the transformer is stamped V-9904-1,or F & W, V-9904 a 32, 000 ohm 10 watt resistor is used. When the transformer is marked V-10204-1 a 32, 000 10 watt resistor in series with a 5000 ohm 5 watt resistor is used. The resistances are chosen to provide approximately 170 volts at the screen grid of the horizontal output tube.

In chassis that have the screen dropping resistance connected to B plus as shown on the original schematic diagram, the total effective screen dropping resistance is changed in some cases. When the chassis contains a V-10045-1 deflection yoke and a horizontal output transformer marked V-9904 with a red dot, the resistance is increased by adding a 4700 ohm 1 watt resistor in series with the parallel combination of R95 and R96 to make a total effective resistance of 17, 000 ohms. In some chassis containing a V-10045-3 or V-10045-4 and a V-10204-1 transformer, a 15, 000 ohm 5 watt resistor is used instead of R95 and R96. Here again the resistances are chosen to provide approximately 170 volts at the screen of the output tube.

13. H. V. FILAMENT CHOKE - In chassis that contain a V-10204-1 horizontal output transformer, a choke is inserted in series in the 1X2A HV rectifier filament circuit to limit the filament current.

14. VERTICAL OUTPUT TUBE - Original production chassis contain a 6K6GT vertical output tube. In late production,however, 6V6GT and 6W6GT as well as 6K6GT tubes are used. These tubes are all physically interchangeable, but their electrical characteristics are not exactly alike. The dissimilarity in characteristics is used to advantage in correcting picture height difficulties. The 6K6GT provides less height than does either of the other tubes; the 6V6GT provides more than the 6K6GT; and maximum height is obtained with a 6W6GT.

15. VOLTAGE DROPPING RESISTOR - In chassis that contain a V-10045-1 yoke and a V-10204-1 transformer, a 110 ohm 5 watt resistor is inserted with the filter choke (L1) between the L. V. filter capacitors (C1A and C1B). The purpose of the resistor is to lower the B plus voltage to a value that prevents excessive voltage output from the voltage-boost circuit.

PREFERRED CIRCUITS

The following chart indicates the circuits that are preferred with various combinations of yokes and transformers. Note that it is arranged in the same order as the preceding section to provide a reference for the individual items. If, for example, there is some doubt about item 3 below, refer to paragraph 3 in the preceding section.

	Yoke	V-10045-3 or V-10045-4	V-10045-3 or V-10045-4	V-10045-1	V-10045-1	V-10045-1
	Transformer	V-9904-1 or F & W V-9904	V-10204-1	Red Dot V-9904	V-9904-1 or F & W V-9904	V-10204-1
1.	Yoke connection terminal	5	5	7	5	5
2.	HV filter capacitor return	7	5	7	7	7
3.	Width control shunt (R99)	used	omitted	used	used	omitted
4.	Yoke return capacitor (C89)	.1MFD	.1MFD	.1MFD	.1MFD	.1MFD
5.	Horizontal output bias network	omitted	omitted	omitted	omitted	omitted
6.	Horizontal MV plate load (R88)	270K	270K	270K	270K	270K
7.	Horizontal MV plate dropping resistor (R86)	56K	21K	56K	56K	56K
8.	Boosted voltage filter capacitor (C81)	.03MFD	.06MFD	.03MFD	.03MFD	.06MFD
9.	Vertical discharge capacitor (C62)	.05MFD	.05MFD	.05MFD	.05MFD	.05MFD
10.	Vertical discharge resistor (R77)	8200 ohms	8200 ohms	5600 ohms	5600 ohms	5600 ohms
11.	Vertical output decoupling resistor (R80) resistance and connection	5KΩ term. 4	5KΩ term. 4	5KΩ term. 4	470Ω B plus	470Ω B plus
12.	6AU5 screen resistance (R95 and R96) total resistance and connection	12.3K B plus	15K B plus	17K B plus	32K term. 4	37K term. 4
13.	H.V. filament choke	omitted	used	omitted	omitted	used
14.	Vertical output tube	6K6	6K6	6W6	6W6	6W6
15.	Voltage dropping resistor	omitted	omitted	omitted	omitted	used

ORDERING INSTRUCTIONS

The various part numbers that are stamped on the deflection yokes do not include the two resistors across the vertical winding nor the capacitor across the horizontal winding. However, the yokes are stocked only as assemblies, complete with the resistors, the capacitor, and leads. The correct order numbers are as follows:

For yoke stamped -	Order Part Number -
V-10045-1	V-10049-3 yoke assembly
V-10045-3	V-10049-4 yoke assembly
V-10045-4	V-10049-5 yoke assembly

From the preceding given information , it is apparent that one deflection yoke can be used to replace another. To do this, however, certain circuit alterations may be required as indicated in the preceding sections. For maximum ease of replacement, it is therefore recommended that a yoke be replaced with one bearing the same number.

The same recommendation applies to the horizontal output transformer. To replace a transformer marked V-9904 or V-9904-1 order part number V-9904-1; to replace a transformer marked V-10204-1 order part number V-10204-1.

COMPENSATING FOR COMPONENT VARIATION

As an aid in correcting scanning defects that are caused by variation in replacement component characteristics, the circuits that affect a certain characteristic of the picture are listed below in terms of their effects. These listings are intended primarily as a cross-reference for the detailed information given under "CHANGES REQUIRED WITH VARIOUS YOKE AND TRANSFORMER COMBINATIONS", and the paragraphs specified below to this section.

Height	Paragraph 9. Vertical discharge capacitor Paragraph 10. Vertical discharge resistor Paragraph 14. Vertical output tube
Width	Paragraph 1. Yoke connection Paragraph 3. Width control shunt Paragraph 4. Yoke return capacitor
Height & Width	Paragraph 2. HV filter capacitor return Paragraph 8. Boosted voltage filter capacitor
Vertical Linearity	Paragraph 9. Vertical discharge capacitor Paragraph 10. Vertical discharge resistor
Horizontal Linearity	Paragraph 1. Yoke connection Paragraph 3. Width control shunt Paragraph 5. Horizontal output bias network Paragraph 6. Horizontal MV plate load

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6AK5	6AK5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	6CK	
V4	2nd Video IF Amp.	6CB6	6CB6	6CK	
V5	3rd Video IF Amp.	6CB6	6CB6	6CK	
V6	Video Detector - Noise Clipper	6AL5	6AL5	6BT	
V7A	Video Amplifier	6AC7	6AC7	8N	
B	Video Amplifier	6AJ7	6AJ7	8N	
C	Video Amplifier	6AH6	6AH6	8BE	
V8A	1st Sound IF Amp.	6BH6	6BH6	7CM	
B	1st Sound IF Amp.	6AU6	6AU6	7BK	
V9A	2nd Sound IF Amp.	6BH6	6BH6	7CM	
B	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V10A	Ratio Detector	6AL5	6AL5	6BT	
B	Ratio Detector - AF Amplifier	6T8	6T8	9E	
V11	AF Amplifier	6AT6	6AT6	7BT	
V12A	Audio Output	6AQ5	6AQ5	7BZ	
B	Audio Output	6W6GT	6W6GT	7S	
V13	Keyed AGC	6AU6	6AU6	7BK	
V14	Sync. Amplifier - Sync. Separater	12AT7	12AT7	9A	
V15A	Vert. Mult.	6SN7GT	6SN7GT	8BD	
B	Vert. Mult.	12AU7	12AU7	9A	
V16A	Vertical Output	6K6GT	6K6GT	7S	
B	Vertical Output	6V6GT	6V6GT	7AC	
V17	Phase Inverter	6C4	6C4	6BG	
V18A	Horiz. Mult.	12BH7	12BH7	9A	
B	Horiz. Mult.	12AU7	12AU7	9A	
V19	Horiz. Output	6AU5GT	6AU5GT	6CK	
V20	Damper	6W4GT	6W4GT	4CG	
V21A	H V Rectifier	1X2A	1X2A	7CB	
B	H V Rectifier	1B3GT	1B3GT	5C	
V22	L V Rectifier	5U4G	5U4G	5T	
V23	Picture Tube	17AP4	17AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	V-9831	AF883J66H		UPT4445-3335		TVL-4720	▲ Filter ■ Filter ▲ Decoupling
B	40	450							
C	30	350							
D	30	350							Output Cathode
C2A	30	400	V-9892	AF8J330B		UPT3140V15		TVL-3754 TVA-1310	▲ Vert. Output Dec. ■ Filter * ▲ Vert. Output Cathode
B	10	400							
C	150	50							
C3	10	350	V-10117	PRS250/13	BR1035			TVA-1504	V. Amp. Screen
C4	4	50	V-4637	PRS150/4	BR550			TVA-1303	Stabilizing Cap
C5	15		SI5		D6-150		GP1K-15	19C22	RF Coupling
C6	1000		BPD-001	DD-102			801-001	19C1	AGC Filter
C7A	1000		BPD-2X001	DD-2-102			812-2X001	29C7	RF Amp. Dec.
B	1000								RF Amp. Cathode
C8	1000		BPD-001	DD-102			801-001	19C1	RF Amp. Cathode
C9	470		SI470		D6-471		GP2K-470	19C15	RF Amp. Dec.
C10	.38								RF Coupling
C11	.5								RF Coupling
C12	1.8								RF Coupling
C13	25		SI25		D6-250		GP1K-25	19C27	RF Coupling
C14	.68				TCZ-.68				Osc. Coupling
C15	10		SI10NPO		TCZ-10		NPOK-10	19C3	Osc. Grid Cap
C16	1.5						N330K-1.5		Osc. Feedback
C17	.68				TCZ-.68				Fixed Trimmer
C18	15		SI5		D6-150		GP1K-15	19C22	Fixed Trimmer
C19	1000		BPD-001		DD-102		801-001	19C1	RF Bypass
C20	1000		BPD-001		DD-102		801-001	19C1	Conv. Fil. Bypass
C21	680		SI680		D6-681		GP2K-680	19C17	Filament Bypass
C22	5000		V-5596		DD-502	1D5D5	811-005	29C1	RF Bypass
C23	12		R3CC20SL12C		SI12		GP1K-12		Fixed Trimmer
C24	1.5		V-9926-1		SL.5NPO		NPOK-1.5		IF Coupling
C25	800		V-9863-1		BPD-001		801-001	19C1	AGC Filter
C26	800		V-9863-1		BPD-001		801-001	19C1	1st V. IF Dec.
C27	800		V-9863-1		BPD-001		801-001	19C1	AGC Filter
C28	800		V-9863-1		BPD-001		801-001	19C1	2nd V. IF Dec.
C29	800		V-9863-1		BPD-001		801-001	19C1	2nd V. IF Fil.
C30	800		V-9863-1		BPD-001		801-001	19C1	3rd V. IF Dec.
C31	800		V-9863-1		BPD-001		801-001	19C1	3rd V. IF Fil.
C32	270	500	RCM20B271K		1468-00025	D6-271	5W5T25	GP2K-270	Video Coupling
C33	.05	400	RCP10W4503M		P488-05	DF-503	PTE4S5	4TM-S5	Video Coupling
C34	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	Pic. Tube Grid
C35	.1	400	RCP10W4104M		P488-1	DF-104	PTE4P1	4TM-P1	Pic. Tube Grid
C36	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C37	4.7		V-9926-3		SI4.7NPO	TCZ-4.7	5W5V5	NPOK-4.7	M5-55	S. IF Coupling
C38	120	500	RCM20B121K						Fixed Trimmer †
C39	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Dec.
C40	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Cathode
C41	120	500	RCM20B121K						Fixed Trimmer †
C42	47	500	RCM22B470K		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	IF Coupling
C43	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C44	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Dec.
C45	5000		V-5596		BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Cathode
C46	470		R5CC70Z7Y471K		SI470	D6-471	5W5T5	GP2K-470	19C15	Diode Load Cap
C47	.003	600	RCP10W4302M		P688-003	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis
C48	.005	400	RCP10W4502M		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling †
C49	.006	400	RCP10W4602M		P688-006	D6-562	PTE6D6		6TM-D6	Tone Comp. ‡
C50	.005	400	RCP10W4502M		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling ‡
C51	150	500	RCM22B151M		1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	AF Amp. Plate
C52	.005	400	RCP10W4502M		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C53	.002	400	RCP10W4202M		P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Output Plate
C54	330	500	RCM20C331J		SI330	D6-331	5W5T3	GP2K-330	19C14	Horiz. Feedback
C55	270	500	RCM20C271J		SI270	D6-271	5W5T25	GP2K-270	19C31	Sync. Coupling
C56	.01	400	RCP10W4103M		P488-01	D6-103	PTE4S1	821-01	4TM-S1	Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	.25	400	RCP10W4254M	P488-25		GT4P25		4TM-P25	Sync. Coupling
C58	22	500	RCM20B220K	SI22	D6-220	5W5Q25	GP1K-22	19C23	Noise Clipper Plate
C59A	2000		†† V-9213	P688-002	††	PTE6D2	GP2M-002	6TM-D2	Integrator Net
B	5000			P688-005	PC-100	PTE6D5	811-005	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5	811-005	6TM-D5	Integrator Net
C60	.01	400	RCP10W4103K	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. MV Feedback
C61	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	Vert. MV Cathode
C62	.05	400	RCP10W4503K	P488-05		PTE4S5		4TM-S5	Vert. Discharge #
C63	.1	400	V-8023-4104M	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C64	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	Filament Bypass
C65	120	500	RCM20B121K	SI120	D6-121	5W5T15	GP2K-120	19C29	Horiz. Sync. Coupling
C66	.001	400	RCP10W4102M	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Phase Det. Cathode
C67	470	500	RCM30B471K	1468-0005	D6-471	5W5T5	GP2K-470	1FM-35	Phase Det. Plate
C68	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C69	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AFC Filter
C70	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	821-01	4TM-S1	AFC Filter
C71	120	500	RCM30C121J	1469-00015	D6-121	5R5T15	GP2K-120	M5-315	Horiz. MV Feedback *
C72	120	500	RCM20C121J	1469-00015	D6-121	5R5T15	GP2K-120	M5-315	Horiz. MV Plate
C73	3900	500	RCM30C392K	1464-004		1DR5D4		M5-24	Fixed Trimmer
C74	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Hor. MV Dec.
C75	.1	600	RCP10W6104M	P688-1	DF-104	PTE6P1		6TM-P1	Hor. MV Dec.
C76	.25	600	RCP10W4254M	684-25		GT6P25		6TM-P25	Decoupling ¶
C77	820	500	RCM20C821K			1R5T8		M5-38	Horiz. Discharge
C78	.01	600	RCP10M6103M	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Horiz. Sweep Coupling
C79	.1	600	RCP10M6104M	P688-1	DF-104	PTE6P1		6TM-P1	Horiz. Output Screen
C80	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P4		4TM-P1	Horiz. Output Cathode **
C81	.03	600	RCP10M6303M	P688-03		PTE6S5		6TM-S3	Damper Filter
C82	.06	600	RCP10M6603M	P688-06		PTE6S6		6TM-S6	Damper Filter
C83	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AGC Filter
C84	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AGC Filter
C85	500	20000	V-9901-1	HV30C	TV3-502				H. V. Filter
C86	800		V-9863-1	BPD-001	DD-801	1W5T8	801-001	19C1	V. Det. - Clipper Fil.
C87	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	Sync. Amp.-Sep. Fil.
C88	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C89	.25	400	RCP10W4254M	P488-25		GT4P25		4TM-P25	Horiz. Sweep Coupling
C90	.01	600	V-5040-15	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter **
C91	.01	600	V-5040-15	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter **

* Chassis V-2192 and V-2192-1 use a 30MFD / 450V in this application. Mfgrs. Part # V-6570
This section is used as decoupling for sync. amp. V-14.
† Chassis V-2192 and V-2192-1 use 47MMF in this application. Mfgrs. Part # RCM20B470K.
‡ Chassis V-2192 and V-2192-1 use .02MFD in this application. Mfgrs. Part # RCP10W4203M.
§ Chassis V-2192 and V-2192-1 use .01MFD in this application. Mfgrs. Part # RCP10W4103M.
# Chassis V-2192 and V-2192-1 use .1MFD in this application. Mfgrs. Part # RCP10W4104M.
♦ Chassis V-2192 and V-2192-1 use 180MMF in this application. Mfgrs. Part #RCM20C181J.
¶ Chassis V-2192 and V-2192-1 use 10MFD / 450V in this application. Mfgrs. Part # V-10293-1.
†† Items C59A, C59B, C59C, R73A, R73B and R73C are combined into one unit.
** Not used in Chassis V-2192 and V-2192-1.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	1	V-9877			SBBT-565-S	Contrast Control - Front
B	500KΩ	1					Volume Control And SW - Tapped @ 50KΩ - Rear
R2A	5000Ω	1	V-6463	QI1-114	AG-19-S	AN-10	Vertical Linearity Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R2A Per Instructions
R3A	1Meg	1/2	V-9813-2	QI1-137	AG-51-S	B-69	Height Control
B	Shaft		Not req.	Not req.	FKS-1/4	Not req.	Attach to R3A Per Instructions
R4A	50KΩ	1/2	V-9916-1	QI1-123	AG-44-S	AN-31	Brightness Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R4A Per Instructions
R5A	500KΩ	1/2	V-9894-1	QI1-132	AG-58-S	AN-59	Vertical Hold Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6A	250KΩ	1/2	V-9893-1	QI1-130	AG-55-S	AN-50	Horizontal Hold Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R7	2200Ω	1		BTS-2200	RF Amp. Grid
R8	100Ω 20%	1		BTS-100	RF Amp. Cathode
R9	2200Ω	1		BTS-2200	RF Amp. Decoupling
R10	4700Ω	1		BTS-4700	Mixer Grid Coil Shunt
R11	4700Ω	1		BTS-4700	Mixer Grid Coil Shunt
R12	220KΩ 20%	1		BTS-220K	Mixer Grid Coil Shunt
R13	4700Ω	1		BTS-4700	Mixer Plate
R14	15KΩ 20%	1		BTS-15K	Osc. Grid - See Note 1
R15	4700Ω	1		BTS-4700	Osc. Plate
R16	180Ω			BW-1-180	Decoupling - Wire Wound - See Note 2
R17	10KΩ 20%	1	RC20AE103M	BTS-10K	AGC Network
R18	10KΩ 20%	1	RC20AE103M	BTS-10K	AGC Network
R19	47KΩ	1	RC20AE473K	BTS-47K	AGC Network - See Note 4
R20	47KΩ	1	RC20AE473K	BTS-47K	AGC Network - See Note 5
R21	47Ω	1	RC20AE470K		1st Video IF Amp. Cathode
R22	1000Ω 20%	1	RC20AE102M	BTS-1000	1st Video IF Amp. Decoupling
R23	10KΩ 20%	1	RC20AE103M	BTS-10K	AGC Network
R24	4700Ω 5%	1	RC20AE472J	BTS-4700-5%	2nd Video IF Transformer Shunt
R25	47Ω	1	RC20AE470K		2nd Video IF Amp. Cathode
R26	470Ω 20%	1	RC20AE471M	BTS-470	Decoupling
R27	3000Ω 5%	1	V-9927-5		3rd Video IF Transformer Shunt
R28	150Ω	1	RC20AE151K	BTS-150	3rd Video IF Amp. Cathode
R29	470Ω 20%	1	RC20AE471M	BTS-470	4th Video IF Amp. Decoupling
R30	8200Ω 5%	1	V-9927-4	BTS-8200-5%	5th Video IF Transformer Shunt
R31	2.2Meg 20%	1	RC20AE225M	BTS-2.2Meg	Noise Clipper Diode Load - See Note 6
R32	5600Ω 5%	1	V-9927-3	BTS-5600-5%	Video Det. Diode Load
R33	22KΩ	1	RC20AE223K	BTS-22K	AGC Network
R34	4700Ω	1	RC20AE472K	BTS-4700	Keyed AGC Grid
R35	10KΩ	2	RC40AE103K	BTB-10K	Keyed AGC Cathode
R36	3300Ω	1	RC30AE332K	BTA-3300	Voltage Divider
R37	68KΩ	1	RC30AE683K	BTA-68K	Video Amp. Screen
R38	4700Ω	1	RC30AE472K	BTA-4700	Video Amp. Plate
R39	4700Ω	1	RC30AE472K	BTA-4700	Video Amp. Plate
R40	68KΩ	1	RC20AE683K	BTS-68K	Video Peaking Coil Shunt
R41	100KΩ	1	RC20AE104K	BTS-100K	Isolation
R42	68KΩ	1	RC20AE683K	BTS-68K	Voltage Divider
R43	12KΩ	1	RC20AE123K	BTS-12K	Picture Tube Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R44	100KΩ	1	RC20AE104K	BTS-100K	Picture Tube Cathode
R45	150Ω	1	RC20AE151K	BTS-150	1st Sound IF Amp. Cathode
R46	1000Ω	1	RC20AE102K	BTS-1000	1st Sound IF Amp. Decoupling
R47	100KΩ	1	RC20AE104K	BTS-100K	2nd Sound IF Amp. Grid
R48	150Ω	1	RC20AE151K	BTS-150	2nd Sound IF Amp. Cathode
R49	1000Ω	1	RC20AE102K	BTS-1000	2nd Sound IF Amp. Decoupling
R50	68KΩ	1	RC20AE683K	BTS-68K	De-emphasis - See Note 7
R51	6800Ω 5%	1	RC20AE682J	BTS-6800-5%	Ratio Det. Diode Load - See Note 8
R52	6800Ω 5%	1	RC20AE682J	BTS-6800-5%	Ratio Det. Diode Load - See Note 4
R53	22KΩ	1	RC20AE223K	BTS-22K	Tone Compensation - See Note 9
R54	10Meg	1	RC20AE106K	BTS-10Meg	AF Amp. Grid
R55	330KΩ	1	RC20AE334K	BTS-330K	AF Amp. Plate
R56	330KΩ	1	RC20AE334K	BTS-330K	Output Grid - See Note 10
R57	220Ω	1	RC30AE221K	BTA-220	Output Cathode - See Note 11
R58	220Ω	1	RC30AE221K	BTA-220	Output Decoupling - See Note 12
R59	5000Ω	10	V-9600-7	1 3/4A-5000	Voltage Divider - See Note 4
R60	150Ω	1	RC20AE151K		Parasitic Suppressor - See Note 3
R61	470KΩ	1	RC20AE474K	BTS-470K	Feedback - See Note 4
R62	10KΩ 20%	1	RC20AE103M	BTS-10K	Isolation
R63	1Meg	1	RC20AE105K	BTS-1Meg	Isolation - See Note 10
R64	15KΩ 20%	1	RC20AE153M	BTS-15K	Sync. Amp. Plate - See Note 8
R65	470KΩ	1	RC20AE474K	BTS-470K	Isolation
R66	1Meg	1	RC20AE105K	BTS-1Meg	Sync. Sep. Grid
R67	100KΩ	1	RC20AE104K	BTS-100K	Sync. Sep. Plate - See Note 13
R68	100KΩ	1	RC20AE104K	BTS-100K	Phase Inv. Grid
R69	100KΩ	1	RC20AE104K	BTS-100K	Phase Inv. Cathode
R70	68KΩ	1	RC20AE683K	BTS-68K	Phase Inv. Plate - See Note 14
R71	22KΩ	1	RC20AE223K	BTS-22K	Phase Inv. Plate
R72	2200Ω	1	RC20AE222K	BTS-2200	Voltage Divider - See Note 15
R73A	22KΩ	1	V-9213 ††	BTS-22K	Integrator
B	8200Ω	1		BTS-8200	Integrator
C	8200Ω	1		BTS-8200	Integrator
R74	1200Ω	1	RC20AE122K	BTS-1200	Vert. MV Cathode - See Note 16
R75	100KΩ	1	RC20AE104K	BTS-100K	Vert. MV Plate
R76	470KΩ	1	RC20AE474K	BTS-470K	Vert. MV Grid
R77	10KΩ	1	RC20AE103K	BTS-10K	Vert. Peaking - See Note 17
R78	2.2Meg	1	RC20AE225K	BTS-2.2Meg	Vert. Output Grid
R79	470Ω	1	RC20AE471K	BTS-470	Vertical Output Cathode
R80	5000Ω	5	V-5825	1 3/4A-5000	Vertical Output Decoupling - Wire Wound
R81	15KΩ	1	RC20AE153K	BTS-15K	Decoupling - See Note 4
R82	470KΩ 20%	1	RC20AE474M	BTS-470K	Horizontal AFC Filter
R83	47KΩ	1	RC20AE473K	BTS-47K	Horizontal AFC Filter
R84	1200Ω	1	RC20AE122K	BTS-1200	Horizontal MV Cathode
R85	27KΩ 20%	1	RC20AE273M	BTS-27K	Horizontal MV Plate
R86	56KΩ	1	RC30AE563K	BTA-56K	Horizontal MV Plate Decoupling
R87	150KΩ	1	RC20AE154K	BTS-150K	Horizontal MV Grid
R88	270KΩ	1	RC20AE274K	BTS-270K	Horizontal MV Plate
R89	12KΩ	1	RC20AE123K	BTS-12K	Horizontal Peaking
R90	220KΩ	1	RC20AE224K	BTS-220K	Vertical MV Plate - See Note 5
R91	33KΩ	1	RC20AE333K	BTS-33K	Decoupling
R92	120Ω 20%	1	RC30AE121M		Parasitic Suppressor - See Note 18
R93	470KΩ	1	RC20AE474K	BTS-470K	Horizontal Output Grid
R94	33Ω	2	RC40AE330K	BW-2-33	Horizontal Output Cathode - Wire Wound
R95	39KΩ	1	RC30AE393K	BTA-39K	Horizontal Output Screen - See Note 4
R96	18KΩ	2	RC40AE183K	BTB-18K	Horizontal Output Screen - See Note 20
R97	5600Ω 20%	1	RC20AE562M	BTS-5600	Horizontal Linearity Coil Shunt
R98	100KΩ	1	RC20AE104K	BTS-100K	Horizontal Feedback
R99	10Ω	5	V-6984-7		Width Coil Shunt - Wire Wound - See Note 3
R100	470KΩ 20%	1	RC30AE474M	BTA-470K	HV Filter - See Note 19
R101	330KΩ 20%	1	RC30AE334M		HV Filter - See Note 4
R102	220KΩ 20%	1	RC30AE224M	BTA-220K	Isolation

†† Items R73A, R73B, R73C, C59A, C59B and C59C are combined into one unit.
Note 1. Some models use 22KΩ resistor in this application.
Note 2. Some models use 150Ω resistor in this application.
Note 3. Not used in all models.
Note 4. Not used in all chassis V-2192 and V-2192-1.
Note 5. Chassis V-2192 and V-2192-1 use 100KΩ resistor in this application.
Note 6. Chassis V-2192 and V-2192-1 use 1 meg resistor in this application.
Note 7. Chassis V-2192 and V-2192-1 use 27KΩ resistor in this application.
Note 8. Chassis V-2192 and V-2192-1 use 12KΩ resistor in this application.
Note 9. Chassis V-2192 and V-2192-1 use 10KΩ resistor in this application.
Note 10. Chassis V-2192 and V-2192-1 use 470KΩ resistor in this application.
Note 11. Chassis V-2192 and V-2192-1 use 150Ω 1 watt resistor in this application.
Note 12. Chassis V-2192 and V-2192-1 use 680Ω resistor in this application.
Note 13. Chassis V-2192 and V-2192-1 use 150KΩ resistor in this application.
Note 14. Chassis V-2192 and V-2192-1 use 47KΩ resistor in this application.
Note 15. Chassis V-2192 and V-2192-1 use-1500Ω resistor in this application.
Note 16. Chassis V-2192 and V-2192-1 use 820Ω resistor in this application.
Note 17. Chassis V-2192 and V-2192-1 use 3300Ω resistor in this application.
Note 18. Chassis V-2192 and V-2192-1 use 150Ω resistor in this application.
Note 19. Chassis V-2192 and V-2192-1 use 330KΩ 1 watt resistor in this application.
Note 20. Chassis V-2192 and V-2192-1 use 12KΩ 5 watt wire wound resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 1.6A	640VCT .210ADC	5VAC @ 3A	12.6VCT @ 4.8A	V-9889			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	620Ω Tap 65Ω	6.5Ω Tap .4Ω and 5.5Ω SEC. 2	V-9904-1 V-10313-1 ③				Horizontal Output Trans.
T3	650Ω	7.8Ω	V-6981-3	A-8112 ④	A-3038	TS0-5	Vertical Output Trans.
T4A	11.5Ω	0Ω	V-10045-3	DY-7			Horizontal Deflection Coil
B	45Ω		V-10049-5 ③				Vertical Deflection Coil

③ Used in chassis V-2192 and V-2192-1
④ One new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T5	5.8KΩ	3.2Ω	365Ω	.5Ω	V-9982 V-10288-1 ③	A-3877 ④	A-2930	R0-9 ④	④ One new mounting hole. ③ Used in chassis V-2192 and V-2192-1

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Westinghouse PART No.	VIKING PART No.	QUAM PART No.	
SP1 A	PM	3.2Ω	V-10030-1 ①	525J4	52A1	① Used in Model H-641K17
B	PM	3.2Ω	V-9770-1 ②	10J12	10A4A	② Used in Model H-647K17
	CONE DIA.	V. C. DIA.				
SP2A	5 1/8"	9/16"				
B	9 3/8"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.210A	40Ω	1.4 Henries	V-6471-2 V-9213 ③	C-2326 ④	C-2974	TR3300 ④	

③ Used in chassis V-2192 and V-2192-1
④ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	IRC PART No.	
L2	Antenna Coil	0Ω	0Ω				
L3	Antenna Coil	0Ω	0Ω				
L4	RF Coil	0Ω					
L5	Mixer Grid Coil	0Ω					
L6	Osc. Coil	0Ω					
L7	Osc. Coil	0Ω					
L8	Conv. Plate Coil	.1Ω	0Ω				
L9	Fil. Choke	0Ω		V-4886-2			
L10	1st Video IF	.1Ω	.1Ω	V-9881-2			
L11	Sound Trap	.1Ω		V-9501-1			
L12	Fil. Choke	0Ω		V-4886-2			
L13	2nd Video IF	.6Ω	.5Ω	V-9879			
L14	3rd Video IF	.6Ω	.5Ω	V-9879			
L15	Fil. Choke	2.6Ω		V-9099-4		CL-1	3.9 Microhenries
L16	4th Video IF	.6Ω	.4Ω	V-9880			
L17	Sync. Decoupling	1.1Ω		V-4886-1			14 Microhenries
L18	Peaking	7Ω		V-9915-1	19-1920		100 Microhenries
L19	Noise Clipper Decoupling	1.1Ω		V-4886-1			14 Microhenries
L20	Peaking	9.5Ω		V-9915-2	19-1923		350 Microhenries
L21	Peaking	12Ω		V-9915-3	19-1923		500 Microhenries
L22	Video Decoupling	1.1Ω		V-4886-1			14 Microhenries
L23A	1st Sound IF	.8Ω		V-9882-1			
B	1st Sound IF			V-9882-2			Alternate
L24A	2nd Sound IF	.8Ω		V-9882-1			
B	2nd Sound IF			V-9882-2			Alternate
L25	Ratio Det. Trans.	4.5Ω	1.4Ω				
L26	Fil. Choke						Chassis V-2192 and V-2192-1
L27	Ringing Coil	64Ω		V-6764			
L28	Horiz. Lin.	19Ω		V-9960			
L29	Width Coil	95Ω	.9Ω	V-9902			

DIAL LIGHTS

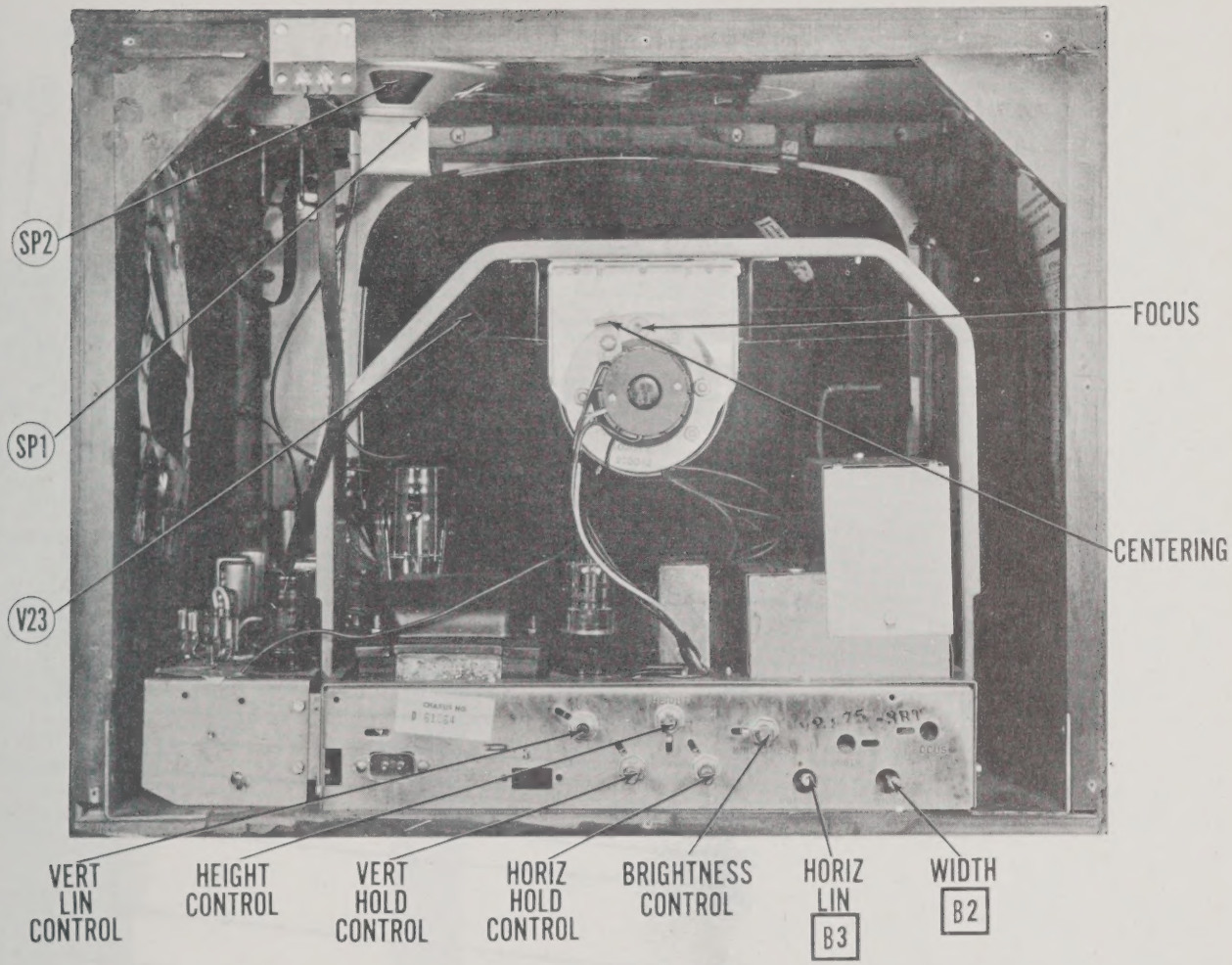
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Westinghouse PART No.		
M1	Bayonet	6-8	.15	Brown	47		Type #47 - Chassis V-2175-1 and V-2175-5
M2	Bayonet	6-8	.15	Brown	47		Type # 47 - Chassis V-2175-1 and V-2175-5

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3A	RF Tuner	V-9886-5	
B	RF Tuner	V-9886-6	Chassis V-2175-1 and V-2175-3
C	RF Tuner	V-10279-1	Chassis V-2175-4 and V-2175-5
M4	Focus Magnet	V-10206-2	
M5A	Ion Trap	V-9784-2	
B	Ion Trap	V-9784-3	
	Safety Glass	V-9870-1	Models H 640T17, H639T17
	Safety Glass	V-10258-4	Models H641K17, H647K17, H646K17
	Escutcheon	V-104446-1	Channel
	Knob	V-10445-1	Channel Selector
	Knob	V-9940-1	Fine Tuning
	Knob	V-9939-1	Contrast
	Knob	V-9938-1	Volume

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			Westinghouse PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M6	3AG Pig Tail	.250	V-6171 ⑤		318.250		⑤ Not used in all models.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across the "ringing " coil, L27.

Turn the set on and tune in the weakest available station.

Connect a VTVM between pin 2 of V18 and chassis.

Adjust the horizontal hold control to the center of the range over which the picture synchronizes horizontally.

Carefully note the VTVM reading.

Remove the short from L27 and adjust the ringing coil core (B1) until the VTVM reads the same as before.

Adjust the width slug, (B2), until the picture fills the mask horizontally.

Adjust the horizontal linearity, (B3), until the picture is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove eight hex head screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove two hex nuts from speaker. Remove speaker.
7. Remove four hex head bolts from chassis. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.